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Sun Nonplussed by Apache J2SE Effort 5
Common Criteria Or Common Confusion? 5
PerfectBuild Aims To Eliminate Code Failures 7
IBM, Ascential Deal Is Completed 8
W3C to Set Rules Regarding Business Rules ..10
BEA Furthers Strategy For SOAs 13
Sun Builds a Fortress For Scientists 14
Gluecode Buy Extends IBM To Low-End App Servers ...16
Sybase Makes Two Acquisitions For Data Access 17
Insession, Pegasystems Update BPM Tools 18
An Open-Source Project To Simplify Others 20
FirstSQL: Keeping Up With The Joneses' Database ...26
Microsoft's Metro: Reaching Into Adobe's Space? 30
Good News/Bad News About Windows Mobile 5 ..33
COLUMNISTS
O'BRIEN:
Shooting Silver Bullets At Moore's Law 40
BINSTOCK:
64 Bits And Nowhere to Go 43
HOLUB:
Finding Pathfinder 45
RUBINSTEIN:
Open Source Picks Up Speed 46

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SUN BUYS ORIGINAL SANTA CRUZ OPERATION

BY ALAN ZEICHICK

On May 10, Sun Microsystems entered into a definitive agreement to purchase Tarantella Inc., the software maker originally known as The Santa Cruz Operation. The purchase price is approximately US$25 million, or 90 cents per share; the company's market capitalization was about $23.86 million.

Sun intends to use the Tarantella remote access software to beef up its mobile products and enhance the capabilities of its SunRay network clients, particularly when it comes to running applications that are hosted on Windows Server 2003. Accord-

▸ continued on page 30

The Last Dance For Tarantella

1979 SCO launched by Doug (right) and Larry Michels.

1983 Releases Xenix, a Unix for *x*86.

1994 Buys Visionware remote access technology.

1995 Buys Unix from Novell.

2001 Sells name, Unix to Caldera. Becomes Tarantella.

2005 Sold to Sun for US$25 million.

OASIS To Tackle SOA Definition

BY YVONNE L. LEE

Just what is and what is not part of a service-oriented architecture is the subject of the latest work the Organization for the Advancement of Structured Information Standards (OASIS) is pursuing.

The group has formed a committee to hammer out the requirements for a service-oriented architecture (SOA) and how the elements interrelate. The OASIS SOA Reference Model (SOA-RM) technical committee is intended to guide both organizations writing SOAs and those that sell products that they say are part of service-oriented architectures, said Duane Nickull, senior standards strategist at Adobe Systems, who is chairman of the SOA-RM technical committee.

The committee's work sprang from the work of another OASIS group, the ebSOA technical committee, a group developing architectural patterns for SOAs in electronic business. That group discovered the members did not have a common view of what a service-oriented architecture was, said Nickull. The definitions not only differed, but sometimes even conflicted in areas, he said.

"Writing a specialization of SOA for electronic business was going to get difficult because a generalized definition of SOA didn't exist," he said. So, the ebSOA committee decided to suspend work until work on the SOA-RM is finished, he said.

The reference model should be complete by the end of this calendar year, he said.

Nickull compared the committee's work to describing the parts of a car, where they are located and how they are relat-

▸ continued on page 30

Why Can't Microsoft Deliver the Goods on Time?

BY JENNIFER DEJONG

Longhorn, SQL Server, Visual Studio. They're all late.

Software delays from Microsoft have become par for the course. But the question of why the company does not meet its promised delivery dates has never really been answered.

ANALYSIS

Analysts and members of the Microsoft community offered up some insights, many of which were confirmed by the company itself.

"Integration, integration, integration," said Joe Wilcox, a senior analyst at New York City-based Jupiter Research. With Visual Studio 2005, the database, development tools, operating system and enterprise servers are more integrated than ever before, and that creates cross-dependencies. "If SQL Server slips, Team System slips," added Tom Murphy, vice president of integration and development at research firm Gartner, referring to the life-cycle development edition of Visual Studio 2005. "When you architect systems that are interdependent, there are advantages. But that also makes them difficult to change."

DAILY BUILDS DIFFICULT

The process of creating such systems can cause problems. Visual Studio 2005 (and the products it depends on) have grown to a point where it's a "challenge for Microsoft to build and test a full system every day," Murphy said. "They have gotten to a point where releases that were [once] manageable with standard [development] practices no longer are," he said, noting author Jim McCarthy's book "Dynamics of Software Development," which advocates on-time delivery techniques, such as the daily build.

Asked if standard development practices were no longer working, John Montgomery, director for Visual Studio and developer platform product management, simply said: "Building mission-critical software is very complex. With Visu-

It's ironic Team System will be late, says CriticalSites' Hynds, since the suite seeks to help organizations deliver software on time.

al Studio 2005 alone, we're delivering over 14 separate products from the Express line to Team System. In addition, we're working on integrating the Common Language Runtime into SQL Server, which is a considerable engineering effort of its own."

It's ironic that Team System may be late, said Patrick Hynds, a Microsoft regional director and

▸ continued on page 25

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Sun Nonplussed by Apache J2SE Effort

BY YVONNE L. LEE

Sun officials are a little puzzled but nevertheless approving after the Apache Software Foundation in May announced it was going to begin work on an open-source implementation of Java 2 Standard Edition.

"We do have several thousand man-years in [our J2SE implementation]. It's a frightening number," said James Gosling, CTO of Sun's developer products group, who is considered the "father of Java."

"Just doing the graphics rendering is extremely difficult," he said. "There are pieces of code in there that people should have gotten Ph.D theses for."

Nevertheless, Gosling conceded that new Java Community Process rules made it possible for Apache to begin the J2SE implementation effort, dubbed Project Harmony.

"We put out J2SE under extremely liberal terms," he said. "We've set up the whole process so they could do this."

J2SE 5 is the first version of Java for which an open-source implementation could be made because of changes in the JCP's rules about open source and about Java licensing, said Geir Magnusson, a director of the Apache Foundation who is working on the implementation.

The prior version of Java 2 Standard Edition, J2SE 1.4, which defines the language and runtime environment, was developed under JCP 2.4, a set of rules that did not permit open-source development. The current Java release, J2SE 5, was developed under JCP 2.6.

"Our implementation will be compatible, but by doing it in a collaborative community," he said, "we're going to have something that the community can work with and tailor to different environments."

Magnusson said he believed having an open-source implementation of Java would make it more ubiquitous. "Apache is about collaboration," he said, with a reputation for building quality software that gets widely adopted, such as the Apache Web server and the Tomcat servlet engine.

The open-source Java implementation could be tuned to various platforms, enabling companies to innovate elsewhere, he said. In addition, that version could be distributed with Linux distributions, which currently cannot distribute Sun's version because of licensing restrictions.

"We'd like to see any distribution of Linux to have Java," he said.

Similarly, he said, some governments, such as Brazil's, have mandated that all future software purchases be open-source, so they need such an implementation, he said.

Apache's implementation is possible because the new JCP rules are very liberal, says Sun's Gosling.

HARD WORK

Sun officials said building the J2SE implementation will be difficult, but maintaining future upgrades of the specification and supporting its implementation may be just as hard.

"I think the hard thing is going to be keeping up with the JCP process," said Timothy Cramer, director of NetBeans, an open-source IDE project run by Sun. Gosling said customers with whom Sun has spoken haven't requested an open-source Java implementation.

"The CIO of Citibank is not ranting and raving on Slashdot," he said. Large enterprises were particularly confident in the security testing that Sun's J2SE implementation has withstood, he said.

The Harmony project will develop a single specification for a modular virtual machine and class library allowing for multiple, independent implementations as well as a test suite for interoperability testing of the modules. The virtual machine and class library will be available under the Apache license. The implementation will not rely on any Sun code, but will be modular, allowing independent implementations to share runtime components, and also to allow independent runtimes, such as those IBM and BEA sell with their J2EE stacks, he said. Magnusson said he could not estimate how soon the project would be finished.

Those working on Project Harmony have established a mail list; postings can be sent to harmony-dev@incubator.apache.org and subscription requests to harmony-dev-subscribe@incubator.apache.org.

To pay for the kit, the nonprofit group will apply to Sun for a scholarship, he said.

Magnusson will discuss Harmony at the JavaOne Conference in San Francisco this month. ▮

Common Criteria or Common Confusion?

Misperceptions about the global security standard abound

BY JENNIFER DEJONG

Security breaches get all the attention. But Common Criteria, the process designed to certify that commercial software offerings are secure, is hardly the stuff of headline news.

Mike Wolf wants to change all that. "Common Criteria certification matters," said the general manager of the advanced products engineering group at Green Hills, which sells real-time operating systems and embedded software. But until people understand more about how the Common Criteria evaluation process works—and what the rankings mean—a more apt name for it might be "Common Confusion," he said.

Common Criteria for IT Security (CC) is an international evaluation process and a set of standards that mandates what types of security threats categories of commercial software, such as a database and an operating system, must guard against. The certification process evaluates the technical remedies a product offers to meet those threats and assigns a level of assurance that reflects the evaluators' confidence in the product's ability to protect against those threats, Oracle's chief security officer, Mary Ann Davidson, explained in an e-mail interview.

CONFUSION REIGNS

Evaluators examine issues such as how a product manages log-in, authentication and access control and how it encrypts critical data, as well as its ability to audit user actions, which is critical to tracking how security breaches occur. Confusion results not because the process is inherently flawed, said Wolf, but because the process has two dimensions to it. People tend to focus on the second dimension, without considering how it relates to the first, he said.

The first, known as the Protection Profile, identifies the security requirements that were tested. The second, known as the Evaluation Assurance Level, assigns a ranking from EAL1 (low) to EAL7 (high) that signifies the level of confidence evaluators have in the product's ability to do what it claims to do in terms of security.

An EAL4 ranking is widely considered competitive, said Dan Frye, vice president of

▸ continued on page 30

GETTING A GRIP ON SECURITY

What it is: Common Criteria is an evaluation process and a set of standards that specify the security threats commercial software offerings must guard against. The word "common" connotes that the process is international. Prior to 1993, individual countries implemented their own security initiatives.

What it evaluates: How commercial software handles log-in, authentication and access control; how it encrypts critical data and audits user actions, as well as how it implements other, more advanced security features.

Why it's confusing: The rankings have two dimensions to them: The Protection Profile (which specifies the security requirements that were tested) and the Evaluation Assurance Level (which, ranging from EAL1 to EAL7, signifies the level of confidence evaluators have in the product's ability to deliver on its security claims). That means evaluators can have a reasonably high degree of confidence in a product's ability to deliver a relatively low level of security.

—Jennifer deJong

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Dealing With Build Dependencies: A Vexing Problem No Longer?

PerfectBuild aims to eliminate code failures by generating scripts that require no maintenance

BY JENNIFER DEJONG

Teams tend to focus efforts on the front end of the development cycle, said Nick Berens, president and CEO of Codefast. But the back end—readying applications to be deployed on multiple targets that run different versions of operating systems, languages, app servers and databases—is much more complex, he said.

The Cupertino, Calif.-based company was expected to unveil at the Rational Software Development Users Conference last month a new offering that aims to ease that process. PerfectBuild eliminates the need to write and maintain Ant, Perl and make scripts that manage the build process, Berens claimed. It is designed to do away with failures that often result from the difficulty of managing dependencies among multiple files involved in the build process.

"In a large build, there are literally thousands of dependencies, and right now there is no way to track them," he said. Some teams keep that information in a spreadsheet, but mostly "it's stored in developers' heads."

PerfectBuild, which starts at US$1,000 per user, is essentially a knowledge base that stores data about the target a Linux, Unix or Windows application will be deployed on, automatically generating build scripts and managing file dependencies within them.

"Once you can generate scripts on demand, you don't need to maintain and tweak existing scripts for future builds. You can throw them away," he said, noting that many dependency problems originate from the tweaking process.

Codefast is not a new company, but the expected July launch of PerfectBuild will mark its first foray into the commercial market.

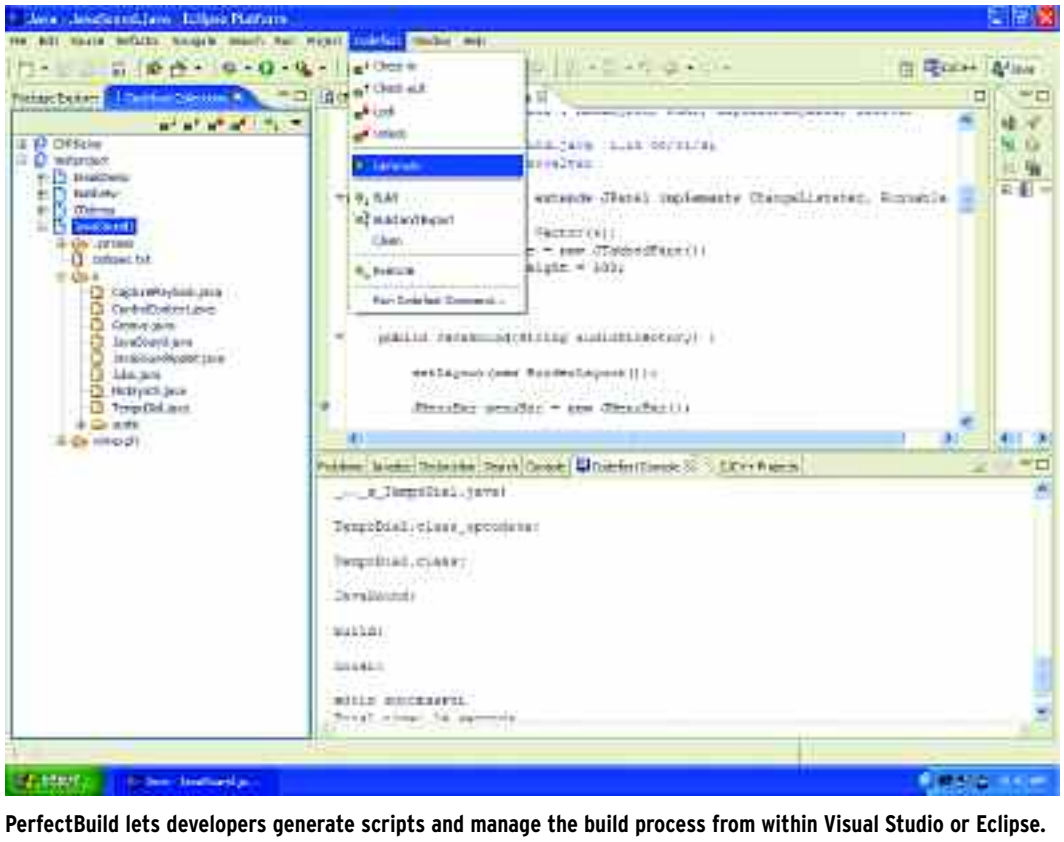
Codefast was founded in 2004 to commercialize a technology that emerged from a research project led by Kevin Jameson, now senior vice president of engineering for the company. Berens learned of Jameson's work in 2001, when, as senior vice president of corporate development for Rational, Berens made plans to acquire Jameson's project, funded by the Canadian government.

But the plan fell by the wayside in December 2001, when IBM announced its intention to acquire Rational. "The Codefast deal got lost in the Big Blue morass," Berens said.

He left IBM Rational to head Codefast in early 2004. In March 2005, Codefast secured US$6.5 million in a Series A round of funding, led by venture capital firms Foundation Capital and Trinity Ventures, both in Menlo Park, Calif.

Unlike Codefast Lifecycle Automation System, Jameson's creation on which PerfectBuild is based, the new offering sports a graphical user interface, gives best practices advice, and provides integration with the open-source configuration management systems CVS and Subversion, as well as with CM tools from IBM Rational, Microsoft and Perforce.

PerfectBuild also works with Eclipse 3.0 and Visual Studio 2003, according to Berens. ▮



PerfectBuild lets developers generate scripts and manage the build process from within Visual Studio or Eclipse.

News Briefs

NEW PRODUCTS

IBM has added new autonomic computing applications to its alphaWorks Web site. **Policy Management for Autonomic Computing** is an embeddable tool to automate IT and business processes. When PMAC is embedded within software applications, an autonomic management tool can make decisions based on policies, or business rules, created by the developer. The Touchpoint Simulator gives developers a realistic architecture to test autonomic systems . . . Digital Harbor is offering a new modeler, called **Enterprise Designer**, which can create deployable Web services that conform to the W3C's Web Ontology Language. The US$5,000 modeler lets developers lay out the flow of Web services, and then bind those services with data, processes, rules, events and messages . . . Telelogic has announced **Lifecycle Solution**, an application life-cycle tool suite that combines the company's DOORS requirements management, Synergy change and configuration management and Tau visual modeling applications. This represents Telelogic's first integration of those tools into a single ALM package.

UPGRADES

Etnus has updated its **TotalView** debugger for Linux and Unix to support Red Hat Enterprise Linux 4.0, Solaris 10 and SUSE Linux 9.4. The company says that a version for Mac OS X will be available in June. TotalView 6.8 now also can export memory debugging data to HTML format. TotalView works on 32-bit or 64-bit C/C++ and Fortran applications . . . The Globus Consortium has announced the release of **Globus Toolkit 4.0**, a set of open-source tools for building grid applications. This version adds compliance with the WS-I Web services specifications, as well as initial support for Security Assertion Markup Language (SAML) and Extensible Access Control Markup Language (XACML). It also implements the Web Services Resource Framework (WS-RF) and Web Services Notification (WS-N) specs . . . Envox Worldwide has released version 6.1 of its **Envox** communications platform. This release adds VoiceXML logging, dynamic grammars, expanded support for Voice over IP, and a hardware phone simulator. This version also includes a graphical programming environment, called **VoiceXML Studio**, for building voice applications . . . Perforce Software is shipping version 2005.1 of the **Perforce Software Configuration Management System**. This release offers a thumbnail viewer for a wide variety of graphics file formats. It also gives users new preferences for customizing how they work with the Perforce file repository. Perforce SCM starts at US$750 per seat . . . Version 1.8 of **Extreme Test**, a load and performance tester from Embarcadero Technologies, introduces new monitoring agents for Apache Tomcat 5.*x*, Gentoo Linux, Oracle Application Server 10g and PostgreSQL 7.*x*. It also adds automatic script support for Oracle 8i, 9i and 10g . . . Electric Cloud has updated its eponymous build-management platform. **Electric Cloud 2.2** includes a scripting interface that ensures teams can automate repetitive tasks. Improved cluster security lets administrators configure a wide variety of access policies. Finally, new cluster sharing improves build throughput by as much as 40 percent, according to the company . . . **Service Pack 4 for SQL Server 2000** extends Microsoft's database support for 64-bit Windows Server 2003 using Windows on Windows emulation (WOW64). The service pack also rolls forward fixes from the previous three service packs, and adds other security and performance patches . . . Birdstep Technology has released versions of its **RDM Server** and **RDM Embedded** databases for Green Hills Software's Integrity operating system . . . Version 3.1 of **QA Wizard**, a functional tester from Seapine Software, has an optional add-in for optical recognition to convert graphical representations of characters into actual text. This lets testers verify graphics-based text in objects, such as images, charts, graphs, Flash-based applications and Java applets. The software also has a new script status tool that lets testers remotely monitor the progress of test scripts from their desks or while away from the office. QA Wizard costs US$2,995 for a dedicated license; the OCR adds $150 . . . Aladdin Knowledge Systems has updated its **HASP HL** digital rights manage-

▸ continued on page 18

IBM, Ascential Deal Is Completed

Big Blue delivers road map for integrating data products

BY JENNIFER DEJONG

IBM last month detailed how WebSphere Data Integration Suite, the forthcoming, rebranded Ascential product previously code-named Hawk, is expected to share capabilities with IBM's existing WebSphere Information Integrator.

IBM plans to sell the two data integration offerings as separate products, said Eric Sall, IBM's program director for information integration. But the combined portfolio, brought together after the US$1.1 billion acquisition of Ascential was completed last month, lets developers and others connect to any data or content, regardless of where it resides or what format it's in, he said. Information Integrator lets users access data from multiple sources in real time. Data Integration Suite complements that capability, transforming and cleansing data, so it can be easily integrated into any application, without having to hand-code each individual connection.

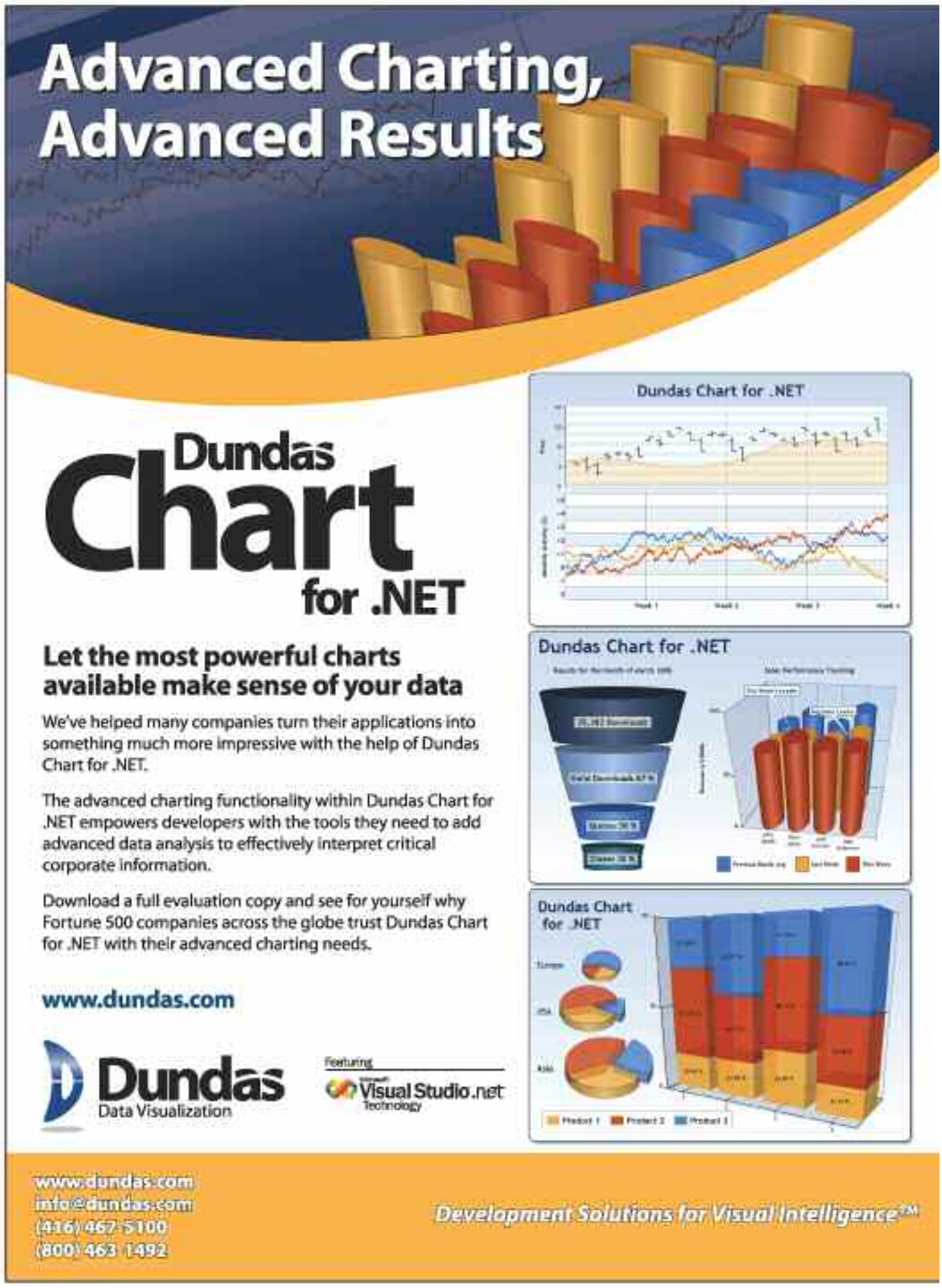
Traditionally, data has been tied to the application in which it was housed, noted Sall. "That was fine for years," but it no longer works for sophisticated applications such as corporate portals that pull data and documents from multiple sources. "Companies have a broad set of information, in different formats, from different vendors," he said. "You need an integrated view of that information."

CONVERGENCE AHEAD

Although the two offerings are expected to remain separate, in the longer term—Sall did not say when—Information Integrator and Data Integration Suite are expected to share one metadata repository, as well as a single set of connectors, essentially precoded snippets for linking to a wide range of data sources. In addition, both are expected to take on the same look and feel, based on Eclipse 3.0. The IBM Rational Software Development Platform is also based on Eclipse 3.0.

Such changes will not be included in the forthcoming versions of both offerings, promised for later this year. The 2005 edition of Data Integration Suite is expected to deliver a common user interface across the tools it includes: ProfileStage (which analyzes data profiling) QualityStage (which performs data validation, cleansing and matching) and DataStage (which integrates data). Also expected are connectors that link Ascential's products and IBM WBI Message Broker, and support for an increased number of languages, Sall said. IBM plans to deliver the beta version of Data Integration Suite in June.

Among the new features promised for the 2005 edition of Information Integrator, code-named Serano, is Rational Data Architect. It will let developers model their data sources to show how they relate to one another, said Sall. "Your CRM system uses customer names; your SAP application uses customer numbers. You need to be able to map them." ▮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W3C to Set Rules Regarding Business Rules

BY JENNIFER DEJONG

As a sign of how rules technology has begun to gain traction, the World Wide Web Consortium (W3C) held a workshop in late April to explore the need to create a standard language for writing business rules.

"Today every [rules] vendor uses a proprietary language, which only its own rules engine understands," said Colleen McClintock, director of product marketing for ILOG, the Mountain View, Calif.-based company that sponsored the workshop. In order for widespread adoption of business rules technology to occur, the industry needs an "equivalent of SQL," she said, referring to the standard language for querying relational databases.

A standard language would let developers switch from one business rules vendor to another, she said. It would also facilitate reuse of rules among multiple applications, including business process management (BPM) and customer relationship management (CRM), as well as those outside company walls. For instance, regulatory agencies, such as those that govern the financial services industry, could generate and distribute business rules to the companies they regulate, written in a standard language, McClintock said.

SEMANTIC WEB

A standard language would also speed the development of the Semantic Web, a W3C effort that aims to add intelligence to the Web, replacing blind searching for strings with meaning and context. "Rules is one of the technologies essential to making the Semantic Web happen," McClintock said.

The April workshop was attended by more than 80 people, including W3C engineers working on the Semantic Web, as well as rules vendors, such as Minneapolis-based Fair Isaac and Cambridge, Mass-based Pegasystems. The workshop concluded that the needs of both parties overlap, and that the next step—the creation of a standard rules language—is worth taking, McClintock said. Workshop participants agreed to form activity groups, a standard W3C procedure, to begin exploring a rules language. Completion of a standard language is likely to take a couple of years, she said. "I believe the standard will stay with the W3C."

A BUSINESS ASSET

Business rules govern how an application makes decisions. They are used to determine, for example, how much credit a bank might extend to a customer applying for a loan, or under what conditions an insurance company will issue a policy to an applicant. Traditionally, such rules have been written into the source code, but for companies that update rules and add new ones on a frequent basis, that approach has proved impractical.

Business rules software manages rules separately from the source code, making them easy, even for nondevelopers, to alter. "Most companies have a core set of rules," McClintock said. "Business rules have become business assets." ■

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2 Protect Once
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- Strong wrapper with code obfuscation prevents debugging and reverse engineering
- API code generator for easy implementation and customization
3 Distribute Many
- Single and multi-user license management
- Secure license updates for keys in the field
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Shunra's Virtual Enterprise Mimics WAN

BY YVONNE L. LEE

Shunra's network emulation product has gained the capability to test more dynamic network changes and to test a larger number of remote offices.

The product, which was called Storm and now is called Virtual Enterprise, is designed to simulate how an application will perform on a wide-area network even before the application is deployed.

It gives an indication of how factors such as network traffic and distance from the server will affect the application's performance. Virtual Enterprise captures information about how the servers are responding.

Virtual Enterprise is designed to mimic a given corporate environment, including bandwidth, latency and distance from a server, said vice president of marketing David Hochhauser.

Users of the software build network maps of the network, indicating application end points, gateways, ports and network links. They can further specify the types of network connections, network routing and other information.

Version 3.5 adds a "twister" icon that represents real-time changes such as dynamic routing, differences in network conditions and automatic packet modifications.

The software now integrates with Segue's SilkPerformer. This makes it possible to create scripts that simulate hundreds of users, she said.

Pricing for Virtual Enterprise starts at US$40,000. ■

ADA PREPARES FOR UPDATES

BY ALAN ZEICHICK

Ten years after a significant revision to the Ada programming language, the International Organization for Standardization is poised to make some minor changes. While no date has been set, features in the forthcoming Ada 2005 appear to be fairly well determined.

Key to Ada 2005 will be new language features that improve the safety and portability of applications written in Ada, as well as interoperability with other languages. According to the draft document, another goal is to make it easier to implement modern programming and modeling concepts in Ada.

According to AdaCore, a company that sells Ada development tools, there are several primary changes to the language. One is mutually dependent package specifications, a method of defining mutually dependent data or variable types that can be declared in independent packages. Another is to allow the language to handle multiple inheritance.

The Ada 2005 language also will allow new compiler directives, called pragmas. Among those being added are Unsuppress, which revokes a compiler's ability to skip some language-defined error checks; NoReturn, which allows the compiler to create a normally forbidden program that might loop forever; and Asset, which defines whether a specific policy in the code is true or false. ■

Adaptive Framework for SOA Rides on iWay

Company leverages its adapter technology to capture transactions as services

BY DAVID RUBINSTEIN

Building on its well-regarded adapter technology, iWay Software late last month released Adaptive Framework for SOA, an environment for opening up multiple systems in consistent, reusable ways.

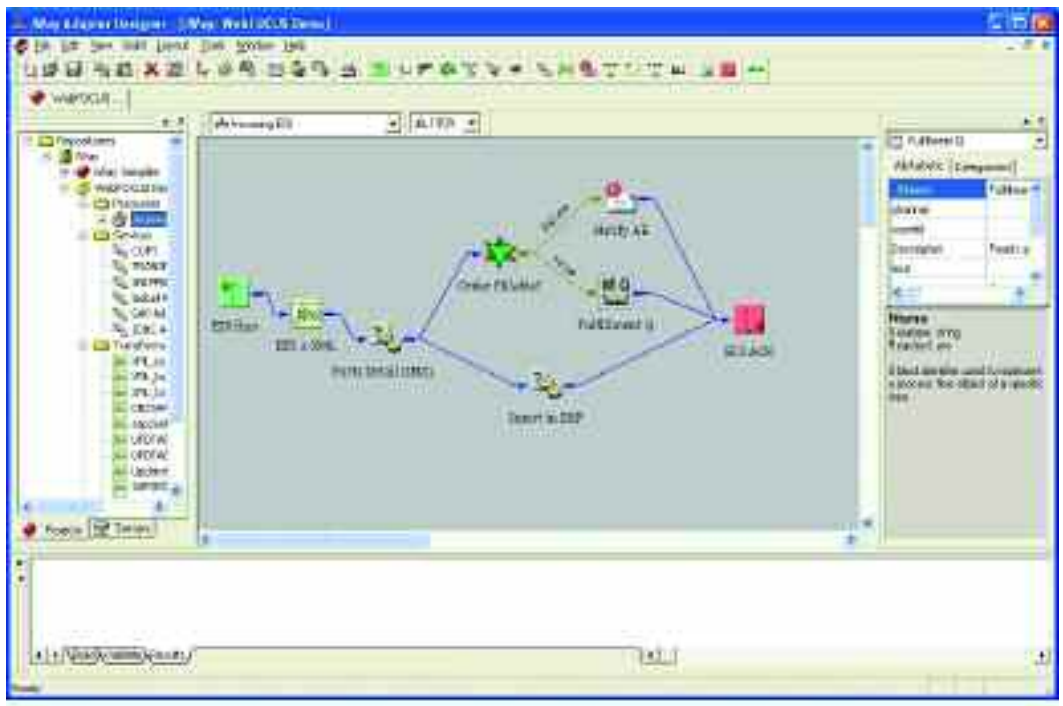
"We have taken tools related to adaptation and product management, and integrated them into a single design-time desktop environment to create services, which can then be aggregated into larger services," said Jake Freivald, iWay's marketing director.

Launched in 2001 as a wholly owned subsidiary of business intelligence company Information Builders, iWay has built more than 280 adapters for a wide variety of partners, helping users to access resources without having to write code, Freivald said.

The runtime for the framework is the company's Adapter Manager, which Freivald said provides an open service-bus architecture. "It's the heart of the framework," he said. The framework can be deployed on most major J2EE application servers or, in a minimal configuration, on a standard JVM. The framework, he explained, can take individual transactions captured via the adapters and aggregated services and expose them through such interfaces as Web services, EDI and Java Connector Architecture.

A second component in the framework is called Trading Partner Manager, a way to configure how a company wants to interact with its partners, Freivald said. "It defines messaging protocols, the kinds of messages it will accept, security [and] access right, and then can associate that channel with the services and events that partner needs," he said.

For example, he said a service called "insert purchase order" could be associated with numerous channels, ensuring all trading partners are communicating with the company in a consistent way.



iWay Adapter Designer aggregates fine-grained technical services into higher-level business-oriented services for reuse in composite applications and business processes.

The final component is called Adapter Designer, used for the aggregation of existing services. Adapter Manager and a set of starter adapters sells for about US$70,000, Freivald said, and individual adapters cost about $20,000. ■

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BEA Furthers Strategy for SOAs

BY YVONNE L. LEE

BEA Systems is reordering its products to promote what it calls a "service infrastructure" for creating service-oriented architectures.

BEA already has announced an enterprise service bus, code-named Quicksilver, which is scheduled to ship by the end of July.

The other new products, which Forrester Research vice president of application development and infrastructure John Rymer described as "Quicksilver writ large," are designed to enable organizations to manage complex composite applications. BEA has code-named the coming products Project Free Flow.

According to Rymer, BEA introduced Quicksilver to broaden the appeal of its integration products. "If you bought their integration solution, that was about 60 grand per CPU," he said. Quicksilver would be priced lower and, in that way, appeal to a wider potential market, he added.

Another motivation for BEA's move into the SOA space is that the company believes the Web services application market is saturated, said Brenda Michelson, senior vice president of the Patricia Seybold Group. "They say that they have 10 percent of the application infrastructure space." If BEA can gain a similar percentage of the SOA market, it could have a US$2 billion share, she said.

The service-oriented architecture products are intended to reduce complexity by creating an abstraction layer. They will be used to manage, configure and enable services, but they will not be used to develop code, said Betsy Bland, director of product marketing at BEA.

"It's all configuration-based, minimizing the amount of code an organization needs," she said. The products include management, security, messaging services, monitoring services and data services, all of which would be administered through a single console, she said.

"They're trying to bring forward the right technical assets from their portfolio to better work with service-oriented architectures," said Rymer.

PLENTY OF COMPETITION

While service-oriented architectures are new to BEA—the company issued a white paper titled "The Advent of a New Service Infrastructure," introducing Project Free Flow—they are not new to the industry.

Rymer compared the offerings in Project Free Flow to Iona's Artix, as well as to products from Sonic. "Then, you've got some people like AmberPoint that might get into this world. They're primarily in management, but they may play a role," he said.

Shawn Willett, principal analyst at Current Analysis, said BEA's Free Flow compares with products from Web services management companies Actional and Blue Titan. "It's not quite that, because while it does have management in there, there are other products as well," he said. "The range is broader because there's messaging and an application server."

Other application server vendors, most notably IBM with MQ Series and WebSphere Business Integration, have also entered the space, but Willett said he believes BEA may have a leg up.

"I would argue that BEA is less encumbered by their existing products," he said. "IBM wants to protect [WebSphere] MQ and WebSphere Business Integration. TIBCO wants to protect their messaging. Oracle wants to protect all kinds of things like their database and their applications. I think they're coming at it from a little more neutral [position] than a lot of other vendors."

OASIS PLANS DEFINITION

Because of the large number of companies purporting to build products for service-oriented architectures and the breadth of approaches used to sell products in that space, the industry group Organization for the Advancement of Structured Information Standards (OASIS) earlier in May announced a plan to develop a common definition for a SOA reference architecture and to spell out the products necessary for such architectures.

BEA is not participating in the OASIS effort, said spokesperson Kristin Wahl.

Not only will Project Free Flow be based around configuring assets via a console rather than building code, but it will not be Java-centric. BEA's line of adapters includes four WebLogic Adapters for ERP applications, and it resells another 26 adapters based on the iWay 5.5 Universal Adapter Framework offered by Information Builders.

First out of the gate in Project Free Flow will be products for Web services management, security, and basic message transport, said Forrester's Rymer, who had been briefed on Project Free Flow.

In addition to Quicksilver, BEA has Liquid Data manage-

▸ continued on page 17

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Sun Builds a Fortress for Scientists

Technical language aims to supplant Fortran

BY YVONNE L. LEE

MOUNTAIN VIEW, CALIF. — Sun Microsystems is working on a scientific programming language that its proponents say will do for Fortran what Java did for C.

The language, called Fortress, is still at least five years away, said Sun fellow and principal investigator for the programming languages research group Guy Steele Jr., who presented the language at Sun Labs Day here in April. Steele is known for his work developing the LISP and the Scheme languages.

Like Java, Fortress (research.sun.com/projects/plrg) would compile parts of the application into platform-independent bytecode before runtime while interpreting parts of the application at execution, said Steele in a separate interview.

"Traditionally, a compiler is operated completely before a program runs. With more recent strategies, including those in Java, you do a partial translation, and this translation takes many forms," said Steele.

Fortress research is partly funded by the Defense Advanced Research Projects Agency (DARPA), with the goal of creating economically viable technologies for both government and industrial applications from the end of the decade and beyond.

"One of the big improvements [of Java] beyond C was just catching stupid mistakes," Steele said, explaining that such mistakes include alerting the programmer when an array request is out of the bounds of the array or deallocating storage prematurely, he said.

The language will assume parallel processing, and loops will be done in parallel by default rather than sequentially.

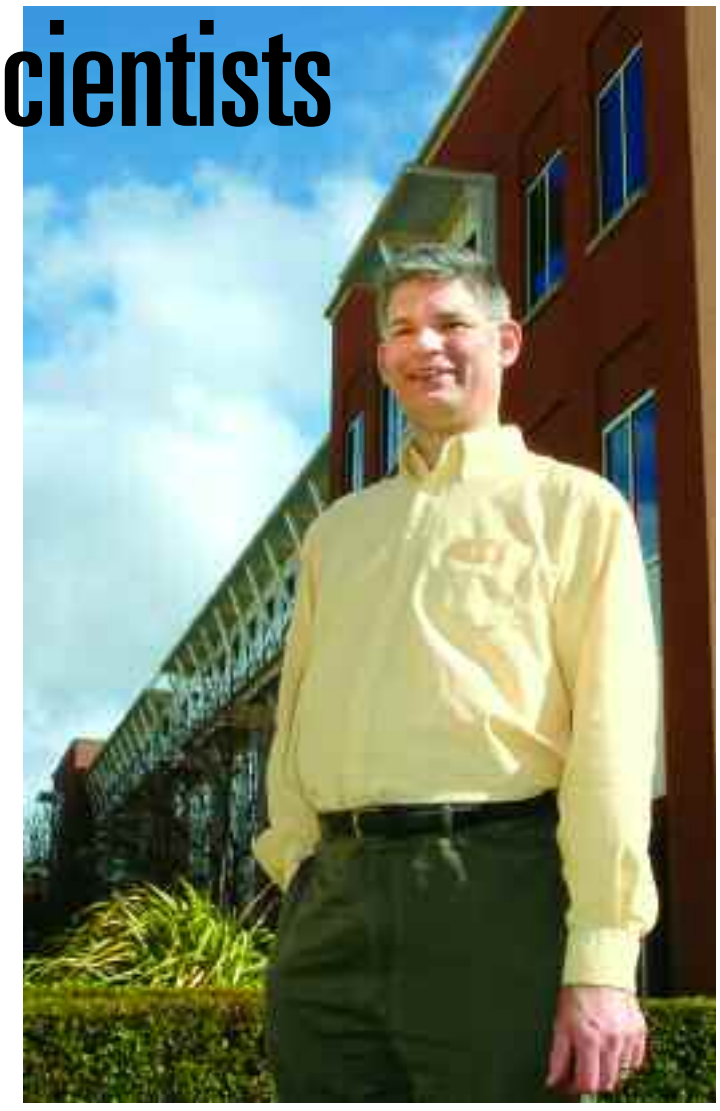
A key feature of the language is that it will seek to do as much as possible using libraries, a feature that Steele said will make the language "growable" and more agile.

"Wherever we're tempted to add a feature to the language, we ask ourselves, 'Could this feature be provided by a library instead?'" he said. This could spur communities of library writers for specific programming areas, he said.

Fortress also will attempt to make it possible to program equations in a more symbolic way than most current languages do. However, it also will be possible to write Fortress code linearly with the ASCII character set, he said.

"Have you ever wondered why an asterisk is used for multiplication?" he asked, and then explained that it was a convention used by accountants that carried over to adding machines and was used by early business computers.

Steele said he believed that making programs resemble equations would make mathematicians and scientists more productive. ▮



Equations can be programmed in a more symbolic way, says Sun's Steele.

Exadel Struts Its Visual Development Tool

Eclipse-based environment also supports JSF, Hibernate O/R tool

BY YVONNE L. LEE

A new low-cost Eclipse development environment is designed to make it easier to build Web-based applications.

Its developers say that the tool, Exadel Studio Pro 2.5, not only has a price of US$99 per seat, but is also among the first visual tools to support development with both JavaServer Faces (JSF) and Struts.

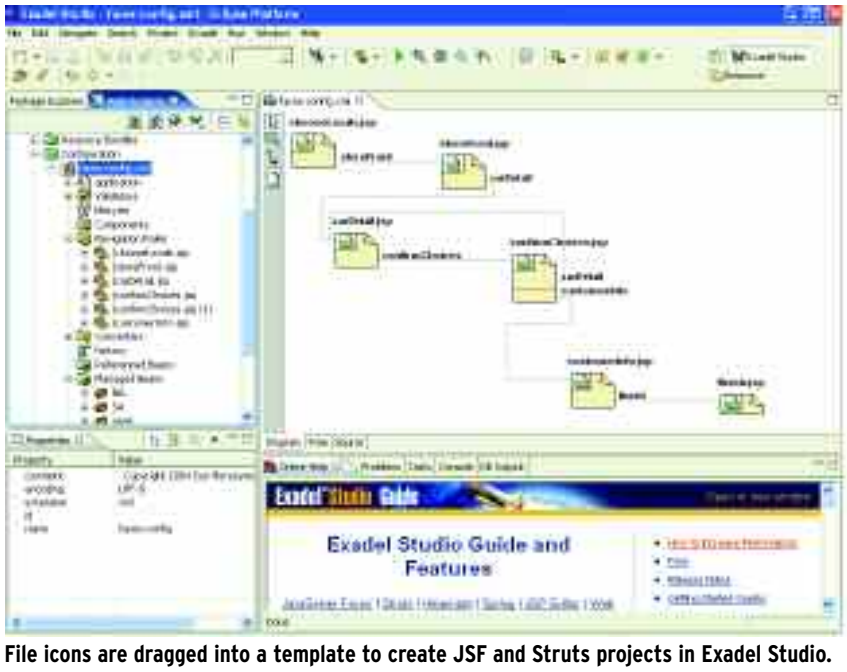
Programmers develop applications by dropping icons of files onto a template. It has wizards for creating new JSF and Struts projects, as well as graphical editors for defining properties and creating XML files. It also includes CSS and JavaScript editors.

The software combines the functionality of three of the company's products: JSF Studio, Struts Studio and Hibernate ORM Studio. It can develop projects using JSR, Struts, Spring and Hibernate.

Exadel Studio Pro has a built-in validation checker that can help with debugging, according to sales engineer Max Katz.

"As you build reference files from different places, we check that all the references are correct," he said. Exadel Studio Pro checks the references immediately as programmers type them, so that, for example, if they mistype a file name, they aren't left wondering where the bad references are when they test the application and such errors are less apparent, he said.

In addition to Exadel Studio Pro, the company offers the free Exadel Studio, which lacks visual Hibernate, object-relational mapping and JSF editors, as well as the validation and consistency checking features. ▮



File icons are dragged into a template to create JSF and Struts projects in Exadel Studio.

Lexical Analyzer Parses Text Meaning

BY ALAN ZEICHICK

Many applications require lexical analyzers—that is, a part of the program that can parse and interpret textual data for further processing. Whether that text input is human-entered, scraped off a Web page, extracted from a database or pulled out of an XML file, the code to parse, tokenize and determine the meaning of the text can be complicated.

To help that process, PerfectLogic has updated OmniLexer, its Windows application that can generate lexical analyzers for Ada, C/C++, Java and PL/SQL (the dialect of SQL used by Oracle databases).

According to the company, the US$47 utility has a graphical user interface that can help developers scan through a specification file that describes the keywords, parameters and other information that needs to be extracted from text streams. It also can define a list of unwanted characters and text streams that should be ignored from the input data stream.

The end result of running OmniLexer is a source-code language file and the appropriate headers to include the generated code in a final application. ▮

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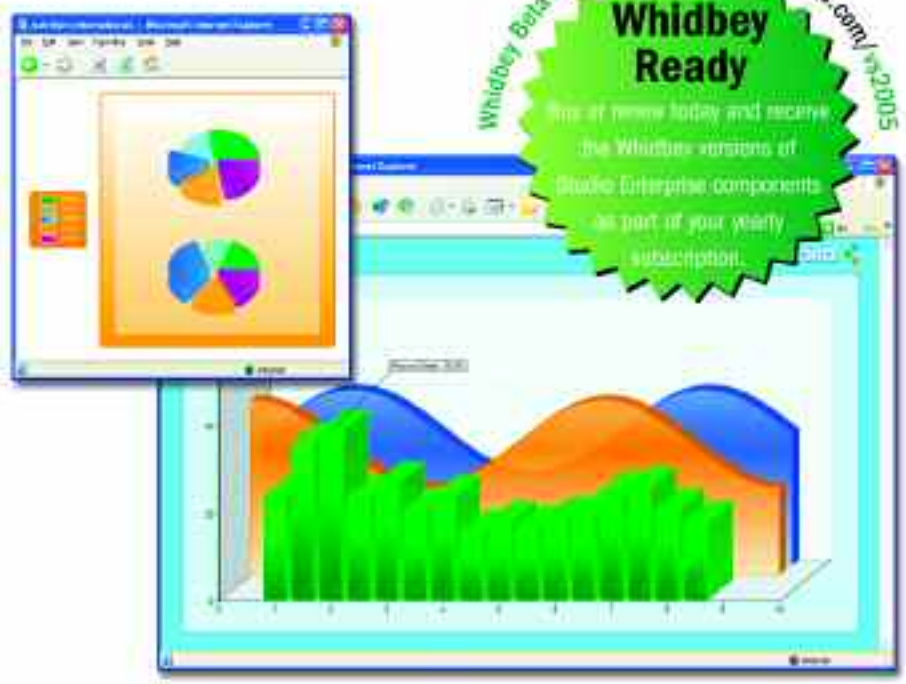
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Gluecode Sticks to IBM's Fingers

Acquisition extends company's reach to low end of app server market

BY DAVID RUBINSTEIN

A perceived shift in the application server market prompted IBM last month to acquire 2-year-old open-source developer Gluecode Software for an undisclosed sum.

Gluecode Joe, based on the open-source Apache Geronimo project, "addresses what we see customers [wanting] as a low-end offering," said Robert LeBlanc, IBM's general manager of application and integration middleware, explaining that it allows the company to reach customers who wouldn't be targets for IBM's more expensive application server products. "Customers can start with Gluecode if they want, and move up to WebSphere."

While its original developers said high-level features such as clustering were part of Gluecode's future direction, that may no longer be the case under IBM's management. Jeff Henry, IBM's director of product management for WebSphere, pointed out that "obviously, WebSphere provides clustering and load balancing," indicating that IBM would not look to overlap features in the offerings.

Eventually, he added, IBM expects to rebrand the Gluecode software as part of the WebSphere family.

Bob Bickel, vice president of strategy and development at JBoss, which also offers an open-source application server, said the acquisition "validates the concept of open-source middleware. [IBM] will help to define to the marketplace how to do open source."

Currently, Apache's Geronimo is not certified by Sun as being compliant with the J2EE specification, but IBM's Henry said more important than the certification to customers is the knowledge that they can deploy Gluecode projects into the WebSphere environment with support "from a company that's going to be around," which could be interpreted as a swipe at JBoss, a much smaller company.

LeBlanc said the acquisition introduces a new business model for IBM—that of commercial open source, where the software is given for free and the company sells support and services. "This makes it easier for customers to acquire the product," he said. However, he and Henry did say IBM plans to grow the Gluecode community and not take it over. "With Eclipse we showed it was important that we don't control it."

Henry said IBM plans to contribute back its work into Apache's Geronimo project, even though it is not required under the Apache license. ■

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Sybase Makes Two Acquisitions for Data Access

BY DAVID RUBINSTEIN

To centralize and standardize access to back-end systems, Sybase last month completed the purchase of technology and assets from enterprise information integration (EII) vendor Avaki Corp. and also acquired ISDD Ltd., which creates software for the management of unstructured data.

The acquisitions, both of which have closed—the terms were not disclosed—are intended to help Sybase more completely deliver on its "Unwired Enterprise" strategy of managing, moving and providing access to data, according to Haridas Nair, the company's director of advanced technologies. "Now we've fleshed out the access part," he said.

Avaki's EII layer over multiple data sources, which provides a unified interface instead of developers having to program for each of the data sources, was created with a grid architecture in mind and as such can easily be spread across multiple machines, Nair said.

Also, Avaki defines and applies access control as data comes into the middle tier, making those tasks simpler as well, he added. Nair went on to say that Sybase exposes its midtier views and data as services that can be called into loosely coupled services-oriented architectures.

The EII solution will be sold as a stand-alone product as it already is integrated with Sybase and other databases, Nair pointed out.

ISDD's solution provides the ability to perform natural-language queries of PDF, PowerPoint, Word and other unstructured data stores from fixed and mobile sources and can return the results of those queries in either XML or as Java objects, making integration of the results into applications more standardized, explained Tom Blair, director of business development for Sybase's iAnywhere mobile subsidiary. "The idea of mobile search and the proliferation of unstructured information is a killer category," Blair claimed. ▮

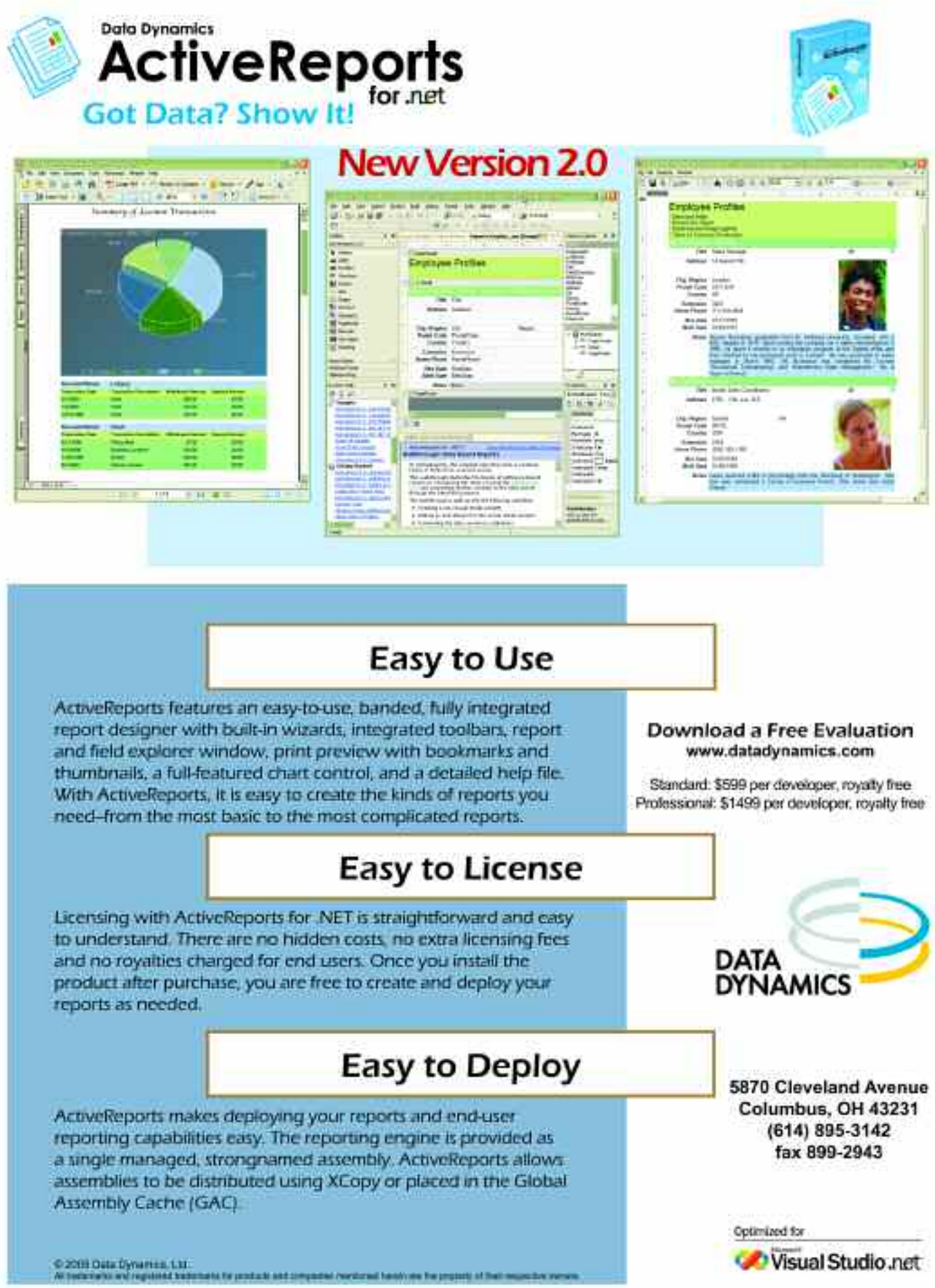
BEA FURTHERS SOA STRATEGY

◂ continued from page 13

ment software, security products and Web services management software, said Bland.

In bringing out Project Free Flow, the company is labeling its WebLogic products as "application infrastructure" products, while calling the SOA management products "service infrastructure" products. Current Analysis' Willett calls this distinction false. "The app server is going to be needed realistically in their service-oriented offering," he said.

Over time, BEA plans to expand on the products available in Project Free Flow, said Bland, but she declined to state whether the company would build out its product line by building new products or acquiring them. ▮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News Briefs

MORE UPGRADES

◂ continued from page 7

ment software. Version 1.2 improves support for .NET, and also works with 64-bit Linux applications. The new release also includes the infrastructure to allow software publishers to create their own license generators and licensing tools that can work with CRM and ERP systems . . . SOA Software is giving away licenses for **Registry 2.4**, its repository for UDDI 3.0 metadata. The company's stated goal is to drive customer adoption of service-oriented architectures . . . SyTech is offering version 6.0 of **XLReporter**, its report generator and data analysis software for Excel spreadsheets. This release supports OPC-HDA servers, GE-Intellution's Proficy and Wonderware's InSQL as data sources, and also adds new parameters for on-demand reporting based on report templates . . . PathScale has updated its **EKOPath Compiler Suite** to generate optimized code for AMD's recently announced dual-core Opteron processors. The compilers run on Linux and are available for C/C++ and Fortran . . . Vertio is offering a version of its **Virtual Platform** embedded systems simulator for Linux. The US$3,990 Virtual Platform replicates the functionality of a development board or system-on-a-chip design, allowing developers to exercise code without physical hardware. The original release of Virtual Platform was for Windows; the Linux version replaces ActiveX controls with Trolltech's Qt application framework . . . The new version of **xmlBlueprint**, an XML editor for Windows from Monkfish Software, improves support for FTP and WebDAV servers. The software costs US$45 per seat . . . SteelTrace has shipped **Catalyze 3.1**, a new version of the company's business requirements capture and management software. This update can automatically generate test cases directly from project requirements. It also has new access controls that the company says simplify the process of assigning group permissions . . . In September, Action Engine will be shipping a version of its **Action Engine Mobile Application Platform** and **Brand-n-Go Mobile Applications Pack** for Java-enabled mobile phones. The software and data delivery platform had previously been available only for Windows Mobile and Symbian-based devices . . . Telerik has updated its **r.a.d. Controls Suite**, a set of user interface and data controls for ASP.NET. The Q2 2005 release includes a new data grid control, called r.a.d.grid, and a new combo box, r.a.d.combobox. The suite also updates the embeddable rich-text editor, r.a.d.editor, to add multilevel undo/redo, dockable and floating toolbars, external CSS files and a client-side API. The full suite costs US$799, or $999 with a one-year subscription to updates.

PEOPLE

Enterprise service bus provider Cape Clear Software has hired **Joe Voica** as the company's first president for North America. He had previously been EVP of sales for Metatomix. Cape Clear was founded in Dublin, Ireland, but now has its headquarters in Massachusetts . . . **Richard Seibt**, the former CEO of SUSE Linux, has left his position as head of Novell's operations in Europe, Asia and the Middle East. No reason was given for his departure. He will be replaced by **Rob Hovsepian**, president of Novell's worldwide field operations, according to published reports . . . **Karen Frederiksen** is the new volunteer chair of the Eclipse Foundation's Marketing Working Group; her day job is as the director of application technologies at Sybase. She takes over from **Mike Taylor** of Instantiations, who had served for two years.

SEIBT

STANDARDS

BEA, IBM, Microsoft and TIBCO have submitted their **Web Services ReliableMessaging** (WS-RM) specification to the Organization for the Advancement of Structured Information Standards (OASIS) to refine and establish as a Web services standard. WS-RM includes the ability to ensure that a message exchange has been completed correctly with no messages lost or duplicated. ▮

Insession BPM Offering Also Lays Down Rules

Competitor Pegasystems adds best practices advice

BY JENNIFER DEJONG

The market for business rules and business process management software is showing no signs of standing still. Insession Technologies added a rules engine to its business process management offering in late April, and competitor Pegasystems last month added best practices advice to its BPM suite, which also includes a rules engine.

Insession's WorkPoint Advantage is a new edition of the company's WorkPoint Business Process Management suite, said Mike Sander, director of product management for the Omaha, Neb.-based company. "We embedded a rules engine to enable the business process owner to have more control over the business process."

In the past, the software did not include a rules engine, which meant developers had to describe rules at a technical level. But the new offering provides business users with a simple interface, prompting them through the rule creation process, Sander said.

For instance, to create a rule that determines whether or not a customer has VIP status, it asks: "How many orders has the customer placed in the past 12 months? What is the total amount of the orders?" That frees developers to focus on the process of implementing rules, instead of having to write them, too, he said.

Pegasystems announced an update to its SmartBPM Suite, delivering advice to developers as they work. "It's just as easy to make noodle code, as well-formed code," said Russell Keziere, vice president of BPM for the Cambridge, Mass.-based company. To avoid that, SmartBPM prompts a developer with questions such as: "Are you adding too many process shapes to a process? A business flow should have nine shapes, not 36." A "shape" represents a task, such as going to the database to retrieve data.

Also new to this release is a feature called SmartFrames, which lets developers create and edit user interfaces for business users, without the need for design expertise.

Keziere also said Pegasystems plans to deliver an Eclipse plug-in of its BPM offering, but he did not specify a time frame. ▮

JavaOne Will Show Off NetBeans

Conference also will celebrate Java's 10th birthday

BY YVONNE L. LEE

NetBeans and Java's 10th birthday will highlight the 2005 JavaOne Conference to be held June 26-30 in San Francisco.

Sun will host NetBeans Software Day at the Argent Hotel on Sunday, June 26, from 12 p.m.-5 p.m. Sun also will offer training sessions that first day, including one for Java Community Process expert group members and specification leads.

James Gosling, CTO of Sun's developer products group; Tim Bray, director of Web technologies; and Graham Hamilton, vice president and fellow in the Java platform team, will give keynote speeches at the NetBeans day.

These keynotes are to accentuate that the integrated development environment now can create mobile and enterprise applications, said Bob Brewin, architect for Sun developer tools.

"Historically, it's been a J2SE IDE. We're adding J2EE support for the latest release," he said. "Historically, that's been the realm for Java Studio Enterprise."

Sun will highlight Java's 10th birthday both at the Monday morning keynote and at Wednesday evening's After Dark party. The birthday is counted not from when work began on Java—that started three years earlier, said Mark Herring, senior director of Java brand marketing. Instead, Sun counts from the time news of the language appeared in print, he said. That same year, Netscape endorsed the language and companies looking at Web development began experimenting with it, he said.

Session tracks at this year's conference, which has the theme "Java in Action," are Core J2SE Technology, Java Technology in Mobility, Core Enterprise Technologies, Java Technology for the Web, Java Technology on the Desktop, Java Technology Solutions, Products and Success Stories, Advanced Networking Technologies, and New and Cool Java Technology.

For the third consecutive year, Sun and online coding competition site TopCoder will sponsor the JavaOne Coding Challenge.

The grand prize will include one complimentary full conference badge to the 2006 JavaOne Conference and a collection of six books from Sun Microsystems Press valued at US$300. ▮

JavaOne

Moscone Center, San Francisco
June 26–30

JAVA UNIVERSITY CLASSES
Sunday, 9 a.m–5 p.m.

NETBEANS SOFTWARE DAY
Sunday, 12 p.m.–5 p.m.

SUN GENERAL SESSIONS
Monday, 8:30 a.m.–11 a.m.
Tuesday, 8:30 a.m.–9:30 a.m.
Thursday, 8:30 a.m.–10:30 a.m.

BEA GENERAL SESSION
Monday, 1:15 p.m.–2 p.m.

NOKIA GENERAL SESSION
Wednesday, 8:30 a.m.–9:15 a.m.

TECHNICAL SESSIONS
Monday, 2:15 p.m.–7 p.m.
Tuesday, Wednesday, 9:45 a.m.–5 p.m.
Thursday, 10:45 a.m.–7:15 p.m.

PAVILION
Monday, 11 a.m.–6:30 p.m.
Tuesday, Wednesday, 11 a.m.–7 p.m.

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An Open-Source Project to Simplify Open-Source Projects

BY EDWARD J. CORREIA

It's not the project to end all projects. Perhaps it should be where all projects begin.

Last month, Linux developer Canonical unveiled Launchpad, an open-source project intended to greatly simplify the tracking and distribution of bug fixes and other contributions to open-source projects by geographically dispersed developers.

"That's the way free software is being developed today," said Benjamin Hill, a free software activist currently employed by Canonical. He added that most open-source applications consist of more than just "one big lump of code. You've got many different derived versions of the single lump of code, and Launchpad takes that into account."

Such derived distributions, he said, can be registered at launchpad.ubuntu.com in a DOAP registry, which implements the Description of a Project framework, developed by Edd Dumbill. "We're building a tool to make creating a derived distribution easier," Hill said, but downloading the project's source code would not be terribly useful. "In the future you will be able to, but at this point you can't," he said, adding that the tools are more akin to those found at Sourceforge or Google. "It's the data and the network effect that makes it useful."

More than just bug tracking, Launchpad propagates fixes to distributions everywhere, Hill said. "It syncs with all the different bug trackers—with Upstream, Debian, Red Hat [for example]. So when a bug gets fixed in one place, it will allow you to see which version of which software is fixed where, which bugs are fixed where, which bugs still exist where and which code fixed which bugs."

Canonical develops Ubuntu Linux, a distribution based on Debian. ▮

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ENERJY OFFERS BEST PRACTICES FOR J2SE 5

BY YVONNE L. LEE

Working with the latest version of Java is the name of the game in Enerjy Software's latest release of its suite of development tools.

Version 7 of the US$495-per-seat Enerjy suite, which includes Code Analyzer, Memory Profiler, Performance Profiler and Thread Profiler, includes more than 50 new rules that flag errors in J2SE 5 code, according to senior software engineer Michael Hamilton.

"I think I'm particularly happy about the migration rules," he said. "We'll identify things that might not even be compatible with [J2SE] 5."

In addition to fixing errors based on new coding conventions, Enerjy 7 will monitor code as developers type, alerting them of newer syntax and current conventions, Hamilton said.

The company initially released in January a version of Code Analyzer that found errors in J2SE 5 code. Version 7 expands on that by adding rules for suggesting best practices, said Hamilton. ▮

DataDirect Wizards Drive Databases

Company claims to ease ADO.NET, JDBC, ODBC connections

BY JENNIFER DEJONG

DataDirect has updated its database drivers, adding a graphic user interface and code-generation features to its ADO.NET, JDBC and ODBC offerings.

The Bedford, Mass.-based company announced version 3.5 of three database connectivity tools: Connect for .NET, Connect for JDBC and Connect for ODBC. All three include wizards that prompt users through the process of connecting to databases via the widely used data access standards.

The browser-based offerings simply "ask questions, then generate code," said John Goodson, DataDirect's vice president of product operations. Previous versions, delivered last summer, required users to read through manuals to familiarize themselves with the details of driver settings, then write the configuration code themselves. "It was tedious," he said. The wizard-based approach also allows users to tune connections to improve performance, without having to dig down into the application to determine the optimal settings, Goodson said.

The Connect products, which cost US$4,000 per server processor, offer an alternative to using the drivers provided by database vendors such as IBM, Microsoft and Oracle. ▮

New Charting Tool For .NET From Data Dynamics

BY JENNIFER DEJONG

.NET component maker Data Dynamics has ushered in a new charting offering, and updated its reporting tool.

SharpGraph for .NET makes it easy for Visual Studio users to add bar, candlestick, line and other two- and three-dimensional chart types to .NET applications, said Issam Elbaytam, vice president of technical marketing for the Columbus, Ohio-based company. SharpGraph, which starts at US$349 per developer, competes with offerings from Dundas, Infragistics and other component makers.

New to version 2.0 of ActiveReports for .NET is the ability to add charts to reports without having to rely on a third-party product; the ability to render HTML text as part of a report without having to reformat it; and support for data binding, which lets developers link a report to a .NET object, such as a collection of customers, without having to hand-code the connection. ActiveReports, which starts at $599 per developer, competes with the widely used reporting tool Crystal Reports, from San Jose-based Business Objects. But the latter is aimed at end users, not just developers, Elbaytam said.

Both Data Dynamics offerings support Visual Studio 2003. The company will begin beta testing the Visual Studio 2005 editions of both components next month, he said. ▮

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'Composer' Visualizes Application Requirements

Serena puts business, IT on equal footing

BY DAVID RUBINSTEIN

Believing that business interests and those of IT must be engaged equally in the development life cycle, Serena next week is expected to release a new product called ProcessView Composer, a tool that creates visualizations of requirements.

"This helps business analysts make clear what they want developers to build," said David Ruiz, director of product marketing for this emerging family of products that will include a collaboration server next. Ruiz was founder of a company called Apptero that developed the visualization technology; it was acquired by Serena in early March.

ProcessView Composer represents what Ruiz called a class of requirements visualization products that provide context and details missing from Word and Excel files commonly used for requirements gathering and creation. The visualizations generated use standard diagram icons, bridging any language gaps, which is especially important for offshore development projects, he said.

Designs can be handed off to requirements management tools such as Rational's ClearCase or Telelogic's DOORS for traceability, or directly to developers for implementation. The product is expected to be priced between US$2,000 and $3,000 per seat, which Ruiz said is in line with what the requirements management tools are going for.

CHANGING TRACK

The inclusion of TeamTrack and enhanced IDE integration highlight the new features in Serena's ChangeMan Professional issue and process management suite, announced last month.

The release also marks the end of the internal integration of Serena's tools with those inherited from the acquisition of Merant last year, according to Steve Pisenti, senior product marketing manager.

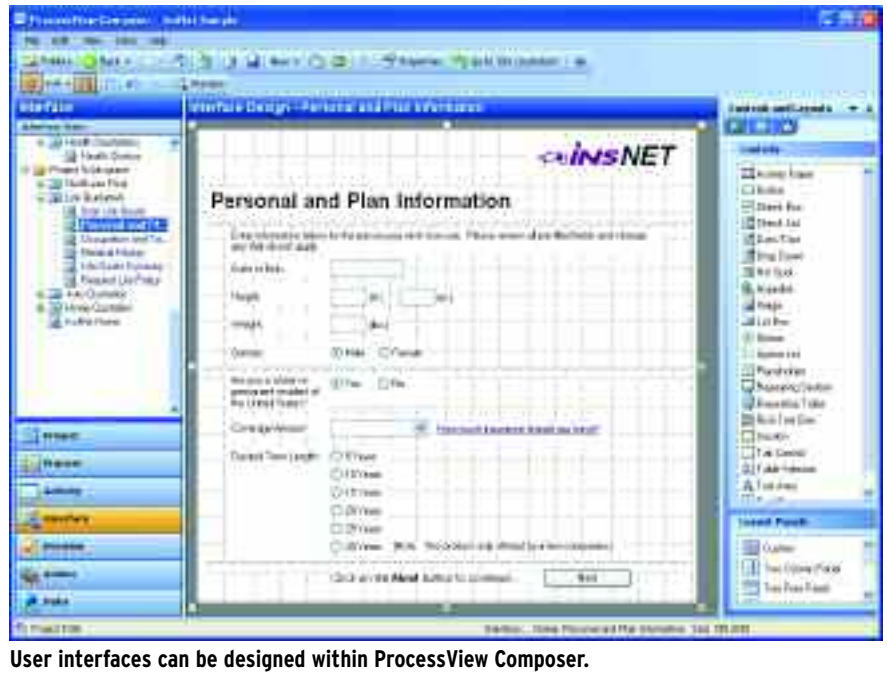
The TeamTrack integration replaces the old Merant Tracker tool in the new release, Pisenti said, enhancing ChangeMan's customizable process and workflow capabilities. Further, he noted the TeamTrack integration with Microsoft's Project management tool, completed several months ago, is now generally available in this release.

The integration with Visual Studio and Eclipse-based IDEs improves the ability to perform parallel development, Pisenti said, by allowing modifications to be made locally in the IDE and then synced back with the repository, while the tool handles merges and changes—"the refactoring-type operations."

By allowing changes to be made locally, ChangeMan enables what Pisenti called "optimistic locking" of code, although the software still can explicitly lock code via the check-in/check-out method.

Finally, Pisenti said the new release gives users the ability to improve efficiencies and capabilities in meeting compliance issues because TeamTrack can automate many of the processes and workflows required to show authentication and auditing.

The pricing of ChangeMan Professional, which includes TeamTrack, Version Manager and Builder (a custom version of Catalyst's OpenMake build management tool), remains at $1,700 per named user. ■



User interfaces can be designed within ProcessView Composer.

Why Microsoft's Always Late

◂ continued from page 1

chief technology officer of CriticalSites, a .NET consultancy in Burlington, Mass. Team System is all about improving communication to deliver software projects on time, he said. "You do a design, generate code, modify the code, and go back and code the changes." In March, Microsoft said it will deliver Team System (and the other editions of Visual Studio 2005) in "the second half of 2005." Earlier, the company had promised a "summer" launch. A Microsoft spokeswoman later claimed that the March update did not represent a slipped date.

TELL THE TRUTH

Given the scope of the Visual Studio 2005 effort, why doesn't Microsoft set more realistic delivery dates, or wait until products are ready before announcing them? The company did not answer that question, but others weighed in.

"Why they don't readjust their time lines, I don't know," said Jonathan Cogley, a Microsoft MVP for C#, and CEO of Thycotic Software, a Washington, D.C., consultancy that specializes in agile software development. (MVPs, or Most Valuable Professionals, are recognized by Microsoft for their participation in Microsoft communities.) "Perhaps Microsoft intentionally preannounces, and they really don't care," speculated Dan Appleman, president of San Jose-based Desaware, which makes components for Microsoft developers. "But I don't mind the delays. I want them to get it right, get it reliable, get it secure."

Getting security right is top of mind for Microsoft. "They do not want a new product to be dismissed because it isn't secure enough," said CriticalSites' Hynds. "Security is front and center for everyone," he added. "A great design is sometimes still riddled with hard decisions to make a product more secure than anything else in the market."

Security is absolutely a top concern for the company overall, Microsoft's Montgomery said. But he did not specify whether addressing that concern has caused delays.

Microsoft may also be wrestling with regulatory issues. A report published earlier this year said company officials had met with overseers from the Department of Justice, charged with enforcing Longhorn's compliance to the U.S. antitrust case settled in 2001. The report speculated that such meetings were contributing to Longhorn's delay.

Asked to what extent compliance with the DOJ, or to the concerns of European regulators, have slowed delivery of Longhorn and other products, Montgomery said: "We have been working closely and openly with the DOJ early in the Longhorn development process to address any questions and concerns."

Even if antitrust suits do not impact delays directly, they may affect Microsoft's behavior. "Microsoft is careful to prevent suspicions that [it is] out of line," said Hynds. He speculated that regulatory concerns may have kept Microsoft from acquiring companies otherwise of interest. "With $60 billion in the bank, they might have bought a company such as Macromedia." But doing so would raise a red flag, he said. Adobe announced plans in April to acquire Macromedia, developer of the ubiquitous Flash player.

A DRINK FROM A FIRE HOSE

In the past, Microsoft has often explained software delays by saying the company is "responding to the needs of its customers." That's a predictable answer. But members of the community said Microsoft is soliciting more feedback—from early betas, community technical previews (CTPs) and events such as bug-tracking contests—than ever before.

"The quantity of feedback is so huge, it's like drinking from a fire hose," said Thycotic's Cogley. "Any MSDN subscriber has seen four or five cuts of Whidbey over the past 18 months," he said, using the code name for Visual Studio 2005. If customers don't like what they see, Microsoft will "go back and do it again," added Hynds. "It's a double-edged sword; more feedback results in going back to the drawing board, pushing back delivery dates."

The upsurge of feedback has had a small impact on delivery time frames, Microsoft's Montgomery said. "But I'm very comfortable with this trade-off."

That still leaves open the question of why IBM and other companies deliver their software development tools on time, when Microsoft can't. IBM launched the Rational Software Development Platform, its lifecycle development offering, in December 2004, meeting the promised delivery date. "That's not a completely fair comparison," said Gartner's Murphy. IBM acquired many of the tools included in the platform from Rational, while Microsoft is creating modeling, testing and other tools promised for Team System from the ground up.

Desaware's Appleman said that although the perception is that Microsoft delays are longer than they used to be, that's not so. "Every Microsoft technology I ever worked with has slipped," he said. "I remember the transition to COM—wow, talk about delays—we thought VB4 would never ship." ■

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Keeping Up With the Joneses' Database

FirstSQL gets triggers, constraints; mobile version on tap

BY EDWARD J. CORREIA

Application-specific database developer FFE Software in early May released FirstSQL 3.0, adding features that its CEO characterized as lacking in his own product but present in major competitors. It also plans a mobile edition this summer.

"We're just playing catch-up," admitted Lee Fesperman, CEO of the 16-year-old company based in El Cerrito, Calif. Version 3.0 adds support for database triggers, constraints and JDBC 3, and is the first major update since the company reorganized and renamed in June 2004; it was formerly known as FirstSQL Inc.

New to version 3.0 is the ability to create Java-based database triggers to kick off procedures from database activities. "Uses might include change validations, data-type validations and to optionally abort a change if it decides things aren't proper. It's also convenient for logging."

Another useful new feature, Fesperman said, is sequence keys, which give developers the ability to automatically generate identity or surrogate keys for each new table. "Sometimes there's confusion over which key should be used" during development, he said. Present in many competitive databases, the auto-increment capability helps avoid that confusion, he said.

He said the features also allow FirstSQL to work more easily with Hibernate—the popular Java object-relational persistence and query engine—including the Add Constraint and Drop Constraint commands that Hibernate assumes are present. FirstSQL 3.0 also now supports JDBC 3, which Fesperman said gives it the ability to retrieve generated keys and the Last Sequence function in SQL. "That's an extra function for retrieving those." The driver is sold separately and works with the server version only. "This expands our usability and makes it possible to talk to [FirstSQL] from .NET applications," he said.

Available now, single-user Professional pricing has been reduced to US$495 per developer seat from $695 for version 2.75; Multiuser Enterprise edition pricing remains at $1,495. Runtime pricing starts at $50.

GOING MOBILE

Fesperman said that the price reduction was intended in part to seize on an opportunity. "There seems to be a certain fading by PointBase since its acquisition" by DataMirror in December 2003. "We're trying to attract more developers in the mobile market."

The company sometime this summer plans to release a version of its Professional edition with the object capability stripped out. "The object capability is expensive and doesn't always work on some mobile devices. So we'd leave that out and [release] a pure SQL relational database." Pricing was not disclosed. ▮

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Mike Milinkovich

Mike Milinkovich is the executive director of the Eclipse Foundation. In the past, he has held key management positions with Oracle, WebGain, The Object People, and Object Technology International Inc. (which subsequently became a wholly owned subsidiary of IBM), assuming responsibility for development, product management, marketing, strategic planning, finance and business development.

Dale Fuller

Dale Fuller is president and CEO of Borland Software Corp. Fuller joined Borland in April 1999 with more than 20 years of experience in general management, marketing and business development in the technology industry.

Before being named president and chief executive officer, Fuller was president and CEO of WhoWhere? Inc., one of the leading community sites on the Internet. He was also a vice president and general manager at Apple.

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Microsoft's Metro: Reaching Into Adobe's Space?

With open source the norm, file formats now take center stage

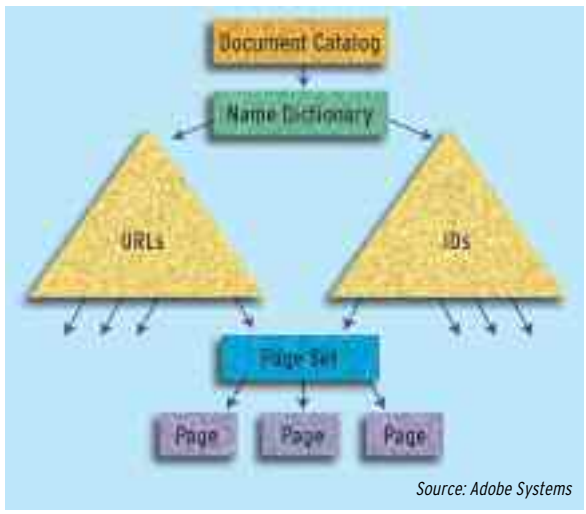
BY EDWARD J. CORREIA

Openness, whether in whole or in part, is becoming the status-quo strategy for many companies with their application and operating system source code. And with recent announcements from OASIS and Microsoft, it appears that file formats may be next in line to be "outed."

The two ideas, unveiled separately, describe how files created with Microsoft's Office applications can be viewed, printed and shared. Microsoft's move also could be seen as a shot across the bow of PDF, mainstay of graphics giant Adobe Systems.

At Microsoft's annual Windows Hardware Engineering Conference (WinHEC) in late April, Bill Gates presented Metro, the code name for what the company describes as "a set of conventions for the use of XML and other widely available technologies to describe the content and appearance of paginated documents."

When contacted for this story, Microsoft declined to be interviewed, and instead issued a statement saying that Metro is being used "to optimize the print architecture for Longhorn, dramatically improving print fidelity and performance," by adopting a consistent format for screen and print output. Metro, which will use the WinFX model and be royalty-free for hardware and software vendors, is intended to enable Windows users to view, print, share and archive documents without Windows or the application that created them, something that Adobe's Portable Document Format has been doing for years.



Source: Adobe Systems

PDF allows dynamic documents; Metro does not, says Adobe.

Indeed, when Apple Computer several years ago saw the benefit of such alignment, it licensed and built PDF into its operating system. "PDF as a universal foundation has added significant value," said Pam Deziel, director of marketing for Adobe's Intelligent Documents business unit.

The Metro specification is broken into two main parts: The Metro Framework, which describes "packaging and physical format conventions for the use of XML, Unicode, ZIP" and other technologies to organize document content; and the Metro Reach Package Format, which describes XML markup for page appearance and rendering.

With Metro, Microsoft claimed in its statement the ability to view and print "these 'fixed layout' documents…while maintaining their advanced color and graphics," and that "any device or application can realize the benefits of using this portable format." Metro will be built into the Longhorn release of Windows, currently set for 2006; a Longhorn beta is scheduled for this year.

But Deziel said that while the notion of a static document format and Metro's print architecture are similar to functionality in Adobe's Postscript and PDF technologies, Metro cannot handle advanced features such as color gradients and transparency. "[Metro] can't preserve transitions, links within files and to external files or content, nor a number of other things that we have been integrating into the PDF specification for many years," such as encryption and compression. "It's tough to make comparisons between that which is shipping and a work in progress," she added.

OFFICE OASIS

In related news, the Open Document Format for Office Applications version 1.0, an OASIS specification that defines an XML schema and semantics for Office applications, has reached the third draft.

According to the document, a 700-page PDF, the spec covers—but is not limited to—files containing text, spreadsheets, graphics and presentations. ▮

Common Confusion?

◂ continued from page 5

IBM's Linux Technology Center. But knowing that a product has met EAL4 is meaningless unless the profile protection it was evaluated against is also taken into account, said Wolf. For instance, Microsoft received a Common Criteria certification for Windows 2000 at EAL4, against the Controlled Access Protection Profile (CAPP). But CAPP represents only a minimal level of security functions, defined as "casual or inadvertent attempts to breach the system security," he said. In other words, "you can have a high level of confidence about a minimal set of security functions," he said.

Novell's SUSE Linux Enterprise Server 9, running on IBM eServers, earned CAPP/EAL4+ earlier this year, said Frye. Microsoft declined a request for an interview, but a spokeswoman said in a statement: "Microsoft regards Common Criteria (CC) certification as a critical measure of a product's security assurance and quality…. We are pleased to have received CC EAL4 Augmented certification for the Windows 2000 platform (including Windows 2000, Windows 2000 Server and Advanced Server)."

Green Hills is currently seeking certification for the Integrity Separation Kernel (part of its operating system for embedded development), against the Protection Profile for Separation Kernels in Environments Requiring High Robustness (SKPP). The profile represents a sophisticated set of security functions, which specifies, among other things, that programs in different partitions are isolated from one another, Wolf said.

CC originated in June 1993, when the United States, Canada and European countries joined forces to create a global standard for software security, instead of relying on country-specific initiatives. Version 1.0 of the CC was completed in January 1996 and became ISO International Standard 15408 in 1999. The current version is 2.2, according to Common Criteria Evaluation and Validation Scheme (CCEVS), which implements the certification in the United States.

Wolf said that although the CC certification rankings can be difficult to decipher, the CC process works and the key to understanding it is education. "Awareness of security is growing, but it's not yet where it needs to be." Meanwhile, the level of sophistication of attack technology is frightening, he said. ▮

Sun Does Tarantella

◂ continued from page 1

ing to blogged comments by Sun president Jonathan Schwartz, "Tarantella's technology provides a foundation to present Windows applications over a grid (ours, or a customer's). Without a Citrix license."

Tarantella, which sold the SCO name and server software to Caldera in 2001, was founded by Doug and Larry Michels in 1979 as a consulting company. Four years later, it released Xenix, a version of Unix for *x*86 processors. In 1989, the company received license from AT&P to use the Unix name, and shipped SCO Unix System V/386.

In 1995, the original SCO consolidated its hold on the Unix market by buying the Unix operating system's intellectual property from Novell (which had purchased it several years earlier from AT&T's Unix Systems Laboratories).

Since 1997, the company focused on its Tarantella Enterprise and Secure Global Desktop product line, which provides secure access to enterprise applications. That led to the sale of the SCO name and Unix assets to Caldera. Doug Michels, who had led the company since its founding, stepped down as CEO at the end of 2003; an entirely new management team was in place by February 2004.

There's no word yet as to what this acquisition will mean for Tarantella's staff, management or Santa Cruz, Calif.-based headquarters. ▮

OASIS TO DEFINE SOA

◂ continued from page 1

ed to a car's overall function.

"You would say that a drive shaft is connected to the axel by the universal joint," he said. Nickull said such a description would provide clarity both to those implementing SOAs and to those selling products in the space.

Alistair Farquharson, vice president of technology of SOA Software, which is a member of the technical committee, likened the process to describing the seven layers of the Open System Interconnection (OSI) model for networks, setting apart the physical, data link, network, transport, session, presentation and application layers. After that, he said, companies could more easily describe where their products fit and how they related to other networking products. "People can identify what they need to build an SOA, and companies can determine what they provide," he said.

In addition to Adobe and SOA Software, other companies participating in the SOA-RM technical committee are AmSoft Systems, Boeing, Booz Allen Hamilton, Fujitsu, General Motors, NEC, Reactivity and Visa International. ▮

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Microsoft: Good News and Bad From Embedded DevCon

Windows Mobile 5 can talk to apps, but major features are tied to Whidbey

BY EDWARD J. CORREIA

The good news is that applications for Windows Mobile 5 can get event notifications from the operating system. The bad news is that version 5's release is tied to Visual Studio 2005, which won't be available until the end of the year, at the earliest.

That's the word from Microsoft, which unveiled Windows Mobile 5.0, the latest version of its Windows CE 5-based operating system, at Mobile and Embedded DevCon in Las Vegas in mid-May.

Windows Mobile 5 is now more customizable, according to the company.

Among the major developer benefits is the State Notification Broker API. According to technical product manager Mike Hall, the API lets native and managed apps written for Compact Framework (CF) 2.0 hook to about a hundred system events, allowing applications to register for notification when those events fire. A preview of CF 2.0 is available now with the preview edition of Visual Studio 2005.

The capability is not unique to Microsoft. Palm OS, for example, has a Notification Manager API. "Apps use that to be notified when a specific event occurs," said Michael Mace, chief competitive officer at PalmSource. "If a Palm OS app is running and the battery gets dangerously low, a battery-low event gets posted to the system event queue, and the app can read that. Apps can read other events in the queue as well," he said.

Also similar to Palm OS, Windows Mobile apps can register their own events with the broker API, which Hall illustrated with an example using Windows Mobile 5.0's GPS support, also new. "For example, you can have multiple applications getting notifications about latitude, longitude and [elevation] directly from the API all at one time."

The new API also is useful, Hall said, for allowing applications to stay abreast of their network surroundings, as in a data collection application. "Imagine a user has entered some data and wants to replicate that back to a central point. Your application can register to be notified when a network connection has been made and can piggyback on that to upload its data."

He said the capability was available in prior editions of Windows Mobile but was limited. "Microsoft Message Queue would send data one time only over a connection, but an application using MSMQ wouldn't necessarily know when a connection was available. Now you can be very smart about how you kick off data transfer."

Managed apps written for CF 2.0 also will be able to call COM objects directly, something Hall said was not easily accomplished before without help from third-party components. "The only other way was to create a Win32 native DLL as a broker between your managed code and the COM object. With 2.0, calling a COM object is just as easy as calling a Win32 DLL."

FREE STUFF

The Visual Studio preview includes a new ARM-based emulator. "So you can write, test, debug, build and deploy your applications [in an environment] that is running the ARM instructions and the same Windows Mobile 5 as a real device," Hall said. "When devices become available, you can just drop your binaries on and go." Such devices are expected later this year, he added.

Microsoft also has added a Bluetooth managed-class library wrapper for Windows Mobile to its Shared Source program, which Hall said greatly reduces the code needed to expose applications to Bluetooth services. "To do that, the native APIs typically required 500-600 lines of code. Now with less than 10 lines of code, you've created and exposed a service, you're listening for clients and exchanging data with them."

The Bluetooth class wrapper is available now for download at go.microsoft.com /?linkid=2913250. ▮

Bill Gates delivers his keynote at Embedded DevCon.

W3C on Mobile Web: Use What Is There

Web group to define best practices, develop device database for all to see

BY EDWARD J. CORREIA

For a better mobile browsing experience, what the world needs now is not love—nor even more technology. It needs to use the technology that's already in place.

So says the World Wide Web Consortium (W3C), which in mid-May launched the Mobile Web Initiative (MWI), an effort to educate the world's carriers and content providers on how best to develop content for the growing and varied number of mobile devices that it says are not accessing the Web, even though they are equipped to do so.

"The fact is that many people use their mobile phone's browser once or twice and give up because of a frustrating user experience," asserted Philipp Hoschka, deputy director of the W3C. "They visit their favorite Web sites, and they often do not work."

That's because most Web sites are designed to be viewed with the large screen that usually accompanies desktop PCs. "The content is not adapted for mobile devices; you often have to chunk information into smaller parts for the small screen," he said.

Addressing the problem will be two working groups: one to focus on content developer best practices, and another to develop a master database containing descriptions of all mobile devices that access the Web. "The Holy Grail of mobile content design," he said, "is to offer your content once and automatically adapt it to whatever device you're using to access it."

The express goal of best practices, Hoschka said, is not to create new technology, but to explain how to use technologies already in place, such as XHTML, SVG Mobile Profiles and the Synchronized Multimedia Integration Language (SMIL). "Our feeling is that we have enough technology; it's just that people don't use it." And it's not just content providers that are ignoring or using technologies incorrectly, he said. "It's also tool makers that need to use and implement the technologies in correct ways." WAP, for example, which he said is widely deployed, is used by very few. "Even the cheaper phones have [WAP-enabled] Web browsers, but often the experience is still not very good. The goal is really more of an outreach and education effort than to define new technology."

MANY DEVICES, LITTLE TIME

The group working on the device description database, he said, faces a more technical and complicated challenge due to the variety of screen sizes and resolutions, variations in keyboards and other input and navigation techniques, and many other issues. "All these factors are important when you develop content that works well on mobile phones."

And while such information about device characteristics exists, it is often hard to find and not standardized, making it difficult to understand and use. "People are developing and collecting this sort of information in various places. The idea of the device description group is to share this effort and bring people together to develop one single database or resource of device descriptions that would be shared by all content developers."

Working groups are being formed between now and July 1. Hoschka said he expects a first working draft to be completed by the fourth quarter of 2005. ▮

Improving Software Quality

Getting testers, developers to work together signals a sea change in industry's approach to fixing errors

BY LINDSEY VEREEN

A study in 1968 proclaimed that software was in a state of crisis. Some think the crisis has since become chronic. The complexity of software makes software errors nearly unavoidable, according to a recent article in Forbes. The industry spends US$60 billion each year to find and fix software errors in products containing millions of lines of code.

Since 1968 end users have come to depend more on software, and their expectations for product quality have risen dramatically. Moreover, the pace of development has accelerated in the new millennium, thanks to the Internet, competition and the tools developers use. It is easier to write Java code and port it than it ever was to write C code and port it. The crop of rapid prototyping languages—scripting languages—like Python, Perl and Ruby makes it easy to build Web sites quickly. Databases have become commodities and don't need to be reinvented each time.

"QA is still a challenge, still generally left to the end, and the staff is treated as second-class citizens," said Ed Hirgelt, manager of services development for Quest Software. However, because of the speed of development and time-to-market requirements, QA is becoming more visible. Test-driven development moves testing to earlier in the life cycle. Tools like JUnit and Ant make it easier to run tests as part of the nightly build process. The concept of a continuous build is helping produce reliable software.

Hirgelt characterizes a continuous build process as one in which a build is initiated when a developer commits code back to the source repository. The product is built and tests run automatically. Problems are caught sooner rather than later.

QA also has been changing as the result of such factors as the wind-down following Y2K and the subsequent business decline. As software companies faced hard times, one solution was to improve efficiency by hiring the most skilled testers available and automating as much testing as possible, according to Elfriede Dustin, internal SQA consultant for global security services at Symantec.

The loss of jobs following the dot-com implosion meant software companies went from having to hire practically anyone with a pulse in the late 1990s to the luxury of choosing from only the most highly qualified candidates. That change has affected who is being hired for QA positions. In some large companies, "coding skills are what you are judged and hired by, with testing skills coming in a distant second," said Duri Price of Exceed Training, who has worked in the software QA field since 1992. Jeff Feldstein, who manages a team of 35 test engineers at Cisco Systems, concurred. He hires software engineers exclusively, and then sells them on test engineering.

Not everyone is convinced that developers make the best testers. "Regardless of actual applicability, the tendency was to hire developers for testing positions," said Price. "It's difficult to easily quantify a tester's competence at testing, especially on paper," he added. "Testing is science, instinct, thought process and art. Science is quantifiable, but the other requirements aren't."

You can't test quality into a system; you have to design it in. That means moving quality issues forward in the process. Companies that have been using a traditional waterfall method are looking at developer testing. "It's still the exception rather than the norm," said Alberto Savoia, CTO and engineering vice president at Agitar, "but I've seen it increasing over the past two or three years."

"Testers need to be involved from the beginning of the development life cycle," said Symantec's Dustin. More important, however, is that so much depends on the developers' skills. The most efficient and knowledgeable testers cannot succeed if developers implement bad software or ineffective software development life cycles and processes are in place. If testing is the only quality phase implemented as part of the QA process, it can at most be considered a Band-Aid often too late in the development life cycle to make much of a quality difference. Testing is only one piece of the quality puzzle.

AGILE METHODS

The growing influence of agile processes has had direct and indirect consequences on quality. With the advent of Extreme Programming (XP) and the

Lindsey Vereen is editor of Software Test & Performance magazine, a BZ Media publication.

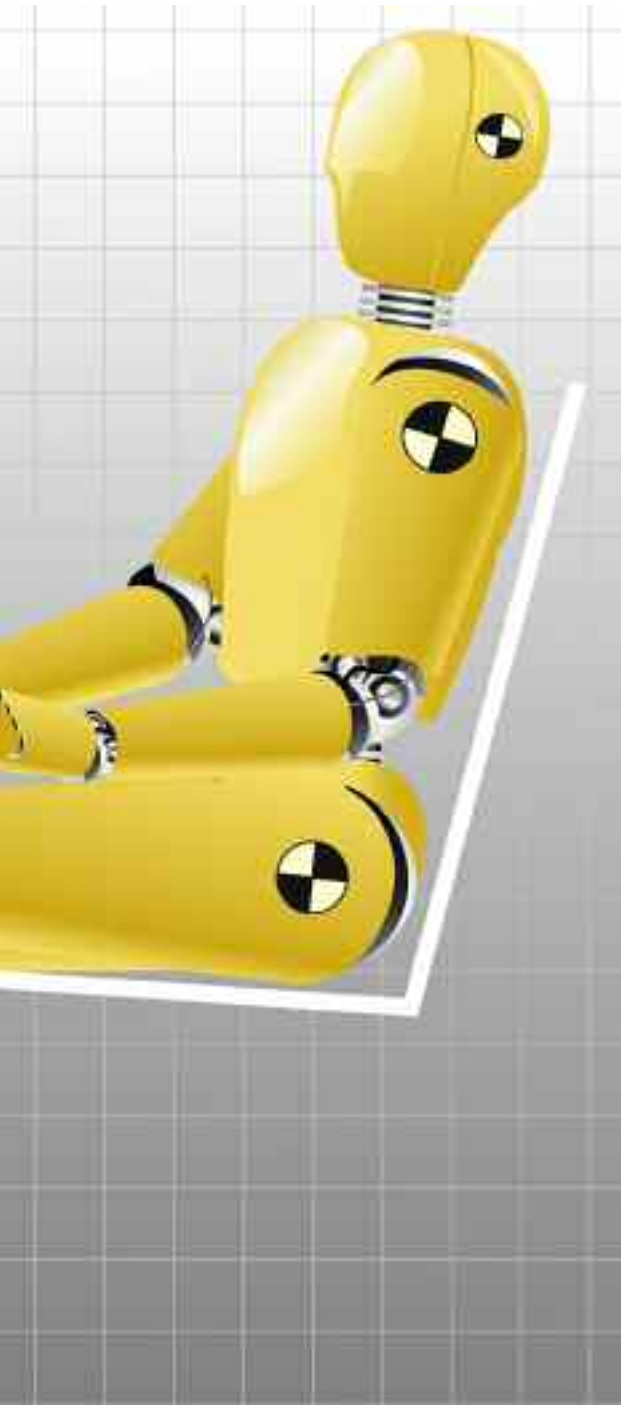
EIGHT REASONS WHY IT'S BETTER TO BE A TESTER THAN A DEVELOPER

When Cisco Systems test manager Jeff Feldstein is looking for new hires, he doesn't search for testers, he said. He seeks out talented software developers with some domain knowledge. "Then I explain to them how testing is an exciting place to be. I start by explaining to them how I was a developer for 19 years before I saw the light."

Here are the eight reasons Feldstein gives candidates that highlight the advantages of being a test engineer:

1. You still develop complex, highly engineered software. Only the purpose of the software is different.
2. You are not beholden to some marketing guy telling you what to build.
3. Since teams are smaller, you tend to work on a bigger chunk of a project (or maybe a whole project) instead of just part of one.
4. If you think of something useful, you build it. No asking marketing guys, checking with customers, etc.
5. It is an extremely creative place to be because anything that helps with productivity or increases the quality of the product can usually be justified fairly easily.
6. You get to break your buddy's code.
7. Test automation, especially highly engineered automation, is a much newer (and therefore less crowded field) than pure software development, which allows for greater innovation. For instance, through Cisco, I have four test software patents pending.
8. Did I mention you get to break your buddy's code?

—Lindsey Vereen



agile movement, testing has become more of a developer activity, said Dustin. Agile methodologies have provided a model for moving testing forward and putting more of the responsibility in the hands of developers.

"With the onset of agile methodologies comes the concept of test-driven development, which was introduced with Extreme Programming," said Bob Galen, a senior QA manager at Thomson-Dialog. The principle is to design tests before designing code, usually using a unit-testing framework such as JUnit or xUnit to help support the practice. Test-driven development has gone beyond XP to become a mainstream development practice, he noted. "It has also sensitized a new generation of software developers on the importance of and skills required to properly test software."

Testers are getting better code and can't simply repeat the same tests as the development team. Galen said they must find other value areas, such as getting involved at the front end with requirement definition and acceptance test development, working in parallel with the development teams, and at the back end working with the customer to run the acceptance testing and doing performance and load testing or usability testing.

Not everyone is convinced that agile processes are the answer. Dustin said she doubts that Extreme Programming can work in a development effort larger than 10 or so developers. Feldstein's group hasn't embraced agile methodologies (though he acknowledged that they have been used successfully elsewhere in Cisco) because he doesn't see them as a way to get high-quality software, but as a way to get software fast. "It's not clear that agile puts quality at the forefront," he said. "Getting it out quickly isn't a priority for us. Getting it right is."

At the Cisco facility where Feldstein works, testers become involved during the development of the product requirements document. "Marketing, development and test are all equal in the team, and they all get involved early on," he explained. The whole team owns the quality, and the whole team decides when to ship. The process is requirements-driven, he said, and they don't need test-driven development. He also noted that the processes are constantly being refined.

"Once developers have committed to a schedule, which occurs when the functionality spec is complete," he said, "they tell you what the API looks like. We can start coding simultaneously. We do unit testing on the test software." When a stand-alone component is complete, it's handed off for functional and performance testing. A stand-alone component is complete after developers have done unit testing, and integration testing between components, and have established baseline performance.

TEST AUTOMATION: POINTS TO PONDER

When companies begin to think about adopting test automation, they can opt for vendor-provided tools or freeware/open-source tools. Both types of tools have their pluses and minuses, and there is no perfect solution. Elfriede Dustin, internal SQA consultant for global security services at Symantec, offers some tips on what to think about before jumping on the test automation bandwagon.

- **Know the types of tools available along with the problem they are trying to solve. There is no one best tool on the market.**
- **Safeguard the integrity of the automated test scripts by using a configuration management tool to baseline them.**
- **Consider that automated testing is software development.**
- **Educate stakeholders about the test automation efforts, especially developers who need to understand the impact of code changes on those efforts.**
- **Manage the expectations by not overselling test automation's return on investment.**
- **Do not let automated testing become an ancillary activity to work on when time allows; ideally use technical testing talent whose sole focus is on test automation.**
- **Not all testers need to be automators, since development expertise is required.**
- **Decide whether to buy or build a tool or whether to use freeware (or all of the above).**

—Lindsey Vereen

AUTOMATION

Another agile community influence has been to drive testers toward automation, according to Thomson-Dialog's Galen. "The notion of complete automated unit-testing capabilities is carrying over into an expectation of general automated testing. Why have automated unit testing and the increased flexibility and safety of executing them, when you have to manually test the application from a QA point of view? It simply doesn't make sense." He said that there is pressure for testers to create high degrees of automation leveraging agile development practices.

The tools are evolving from capture/playback methods toward alternative methods of driving tests that are longer lived and require less maintenance, said Galen. Concepts like "keyword driven," "model driven," "coverage driven" and "database driven" are coming into play.

The trend is to move from simple scripting to highly engineered automation in which software test is as well designed as the application and written in the same language. In most places automation is GUI-based, Feldstein said, which is the wrong place to focus it. "In software test automation, we exercise the software. We don't just do what a user might do. Automation should be like manufacturing automation," he said. "Scripting is simply doing what a human would do but doing it faster. In Japan robots don't just replicate what people do. Their focus is on the most efficient way to accomplish the task of building cars."

Testing is a software development problem that must be 100 percent automated to avoid losing value, he continued. "In manual testing, the first time around testers miss bugs because they don't know what they're doing yet. The second time they catch a lot of bugs. And the third time they're bored." Another drawback of manual testing is that the quality varies from developer to developer.

The advantage of manual testing is that it's not done the same way every time. In classic automation, you execute the same set of test cases every time. Model-based testing, which is a recent development, is a form of automated testing that adds randomness by inserting random behavior into test automation software. You run through tests in different order so you exercise different areas of code.

Automation is not altogether a panacea. Many companies are spending lots of time and effort on automation that doesn't return the investment, said Exceed Training's Price. "I've seen huge batches of automated tests that merely informed us that what we thought should work, did work. They verified. But they didn't usually do a great job at testing."

Price said that a competent tester with or without coding skills could often break the system manually. Coding skills aren't the only skills needed, or even the most important ones, he insisted. The most important thing a tester needs to know how to do is figure out what to test, why to test it and how to test it. The implementation of the test will vary, but first you have to figure out your target. That skill set is getting less and less attention.

EXPLORATORY TESTING

Test automation, by executing a large number of planned tests, frees up resources to do more free-form exploratory testing, according to Price. Exploratory, or context-based testing, is a movement spearheaded by James Bach and articulated in the book he co-authored with Cem Kaner and Bret Pettichord, "Lessons Learned in Software Testing" (Wiley, 2001). Dion Johnson, an independent consultant who focuses on QA, QC, requirements analysis and process improvement, said that exploratory testing supports less initial test planning and documentation and more execution of spur-of the-moment testing concepts based on a tester's intuition about what is happening with the application in real time.

Galen characterized it as testing within the context presented for a given effort or project. For example, in a schedule-driven context, management might give a team two days in which to test a release of the product. That's the context. If the team is operating in a plan and scripted model, it picks which test cases to run that will fit within the two days. The team might try some pri-

▸ continued on page 36

Improving Software Quality

◂ continued from page 35

oritization, but it stays within the bounds of plan and then test.

Context-based and exploratory testing leverage the background, skills and experience of the testers in order to make better decisions under real conditions, rather than trying vainly to create a never-changing set of tests that anyone can run.

In an exploratory model, the team might first look at the intent of the release. If it is a beta test for a mortgage broker customer, the team might choose to test customer-centric and known problem areas in the allotted two days, using an intimate knowledge of the customer and of the product, to define the focus of testing. The team would spend little time planning but much more time reacting to the specific need.

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SECURITY

The Internet explosion has led to a new focus on security, usability and performance testing, said Johnson. Security testing offers a new set of challenges to testers since security flaws don't necessarily affect how a system works from an application perspective. Functional testing will typically ferret out functional problems, but security vulnerabilities have nothing to do with application functionality.

Roger Thornton, founder and CTO of Fortify Software, said that application expertise doesn't translate into security expertise. Security expertise comes from the operations side of the company. Even recognizing that a security flaw exists can be difficult. There is a tendency to blame hackers rather than accept the fact that the software is vulnerable and needs to be fixed. Security flaws may be features of the software. "The hacker's best friend used to be the sys admin. Now it's the programmer," he said, citing SQL insertion as a way that theoretically inaccessible information can be retrieved.

Security testing involves testing for conditions that could lead to security breaches, and that means you have to know where to look. "Security bugs are hard to tease out," said John Viega, co-author with Gary McGraw of "Building Secure Software: How to Avoid Security Problems the Right Way" (Addison-Wesley Professional, 2001). "You need to find vulnerabilities early." He advocates using a static approach and examining source code to find potential vulnerabilities, such as buffer overflows. But he said that right now static testing suffers from too many false positives.

PERFORMANCE TESTING

Usability design and testing also have gained in importance as an approach for ensuring not only that applications meet customer expectations, but also that customers can navigate through them. And performance testing is important to ensure that the system can support the expected load on the system, given the poten-

▸ continued on page 38

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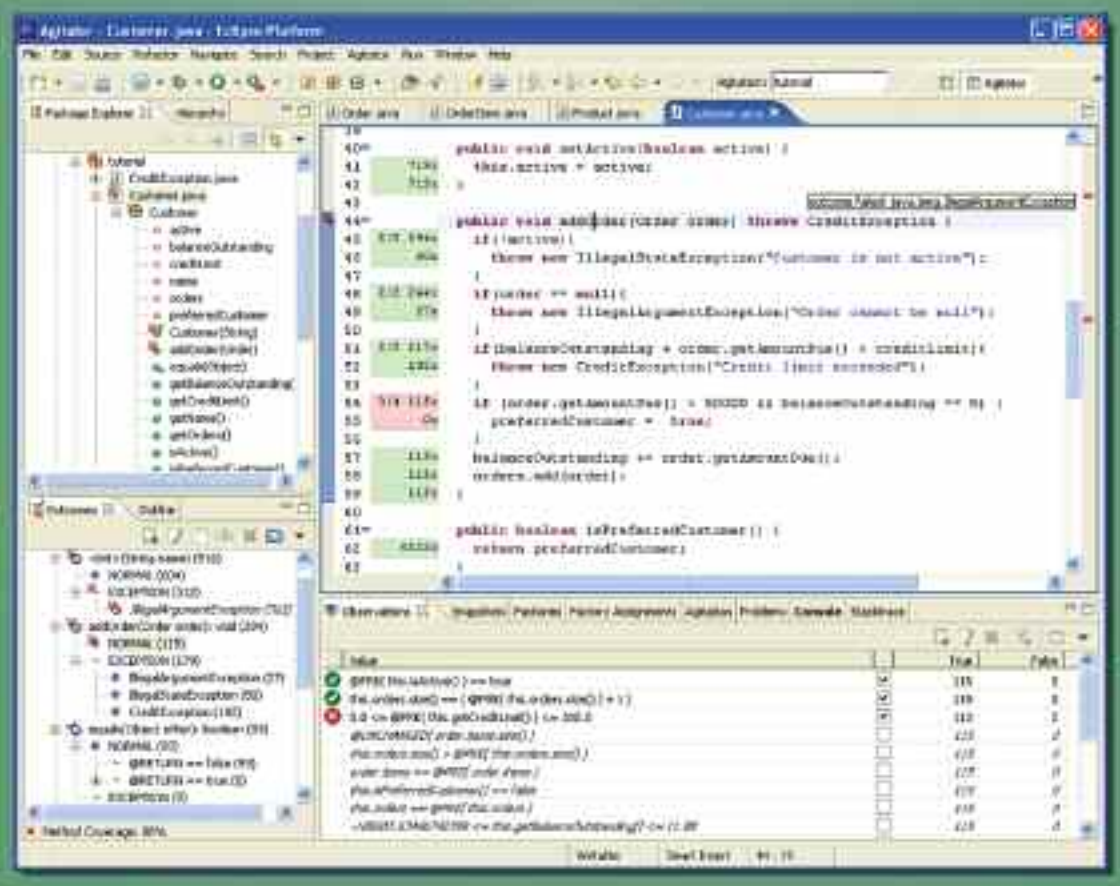

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Sea Change in Approach to Development

◂ continued from page 36

tially high traffic on Internet applications. Feldstein runs a performance test bed in parallel with functional testing, and he monitors resources all the time.

When performance testing specialist Scott Barber, chief technology officer at PerfTestPlus, started doing performance testing five years ago, it was seen as a minor add-on service after the completion of functional testing to validate the maximum supported load on the way to production. Today, performance testing is typically not considered an optional add-on service tacked on at the end, although Barber said it is still five years behind functional testing in terms of industry acceptance and maturity. While performance testing is considered early in the process and is thought to be important, it is still generally outside the overall development process and doesn't start until a beta release.

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OPEN-SOURCE TOOLS

Not only have processes and methods evolved, but the tools landscape has changed rapidly over the past few years as well, particularly with the availability of open-source tools. "Open source is invading the test space as aggressively as it is within mainstream development," said Galen, "and we need to be adapting towards the evolution."

Open-source tools range from development tools to new scripting languages to competitive frameworks to off-the-shelf automation development tools. Besides the xUnit tools, there are tools for acceptance testing, such as FitNesse. Scripting languages such as Python, Jython and Ruby are gaining ground on Perl. "As a tester, it's not good enough any longer to know a little Perl," he said. "You must understand a variety of scripting languages to leverage in your day-to-day tasks."

Testing frameworks that are becoming available in open source rival the traditional automation tool vendor offerings in breadth and capabilities. Barber said that vendors of commercial test tools are "about to be in for a shock, as they find that the new tools are significantly cheaper, and as they learn that the open-source tools are competitive."

A GLANCE FORWARD

Beyond the impact of open-source tools, the test-tool market is on the verge of a major overhaul, according to Barber. Testing tools are being integrated into development environments, a confirmation that the industry is beginning to acknowledge that developers need to be the first to test and that testers need to work hand-in-hand with developers.

He said that while people rather than tools drive the industry, we are in the unique situation of seeing the industry and the new tools moving simultaneously in a positive direction. "I think there is a revolution brewing in the way that the software development industry as a whole views testing, and I think it's a good one." ▮

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EDITORIAL

End of a Unix Era

When Sun agreed to purchase Tarantella in mid-May, the troubled computer maker was doing more than acquiring some remote-access technology. It was buying a piece of history. Or, one could look at it as two forks in the history of Unix merging back together.

Tarantella, of course, was the original Santa Cruz Operation.

Founded in 1979 by a famous father-and-son pair, Larry and Doug Michels, the original SCO became a respected, if eccentric, Silicon Valley fixture, even though its headquarters were on the north end of Monterey Bay, miles west of the traffic and congestion of San Jose, Santa Clara and Palo Alto.

Originally a consulting company, the Santa Cruz Operation became one of the first companies outside of AT&T Unix System Laboratories to offer a version of Unix. SCO's Xenix ran on *x*86 processors, and was based on AT&T Unix System III. It picked up well-known licensees in those days, including Radio Shack and Microsoft.

Another early supporter of Unix technology was Sun. Founded in 1982, the company derived SunOS from Bill Joy's Berkeley Standard Distribution, or BSD Unix. When the SunOS kernel expanded into the Solaris 2.*x* operating environment, Sun licensed and adapted AT&T Unix System V.

While Sun was taking over much of the commercial Unix market, the Santa Cruz Operation went on a shopping spree. Novell—the NetWare folks—had purchased Unix System Laboratories from AT&T in 1992. In 1995, Novell sold that division to SCO. SCO also purchased the Tarantella technology, which provided remote terminal access to Linux, Unix and mainframe systems.

In 2001, the Santa Cruz Operation, as we know it, came to an end. The company sold its operating system assets, as well as its name, to Linux developer Caldera, and decided to focus on its remote-access software. We all know what happened after that.

While Caldera initially seemed to want to create products that bridged and enhanced Linux and Unix, a new management team led by Darl McBride instead decided to pursue intellectual property lawsuits against companies, like IBM, that it claimed violated the original AT&T license agreements.

Thus the venerable SCO name—which Caldera adopted—became synonymous with lawsuits, FUD and the anti-open source movement.

While nobody is shedding a tear for the continual financial woes of the new SCO Group, few should be celebrating the demise of the original Santa Cruz Operation, with its rich history as part of the early computer industry.

Perhaps it's fitting that the remnants of the original Santa Cruz Operation are finding their home with Sun, arguably the only major platform provider with a long-term strategic focus on the Unix operating system, and probably one of the few that would appreciate its legacy.

It's been 26 years since the Michelses founded the Santa Cruz Operation. Now, it's gone. An era truly has passed. ■

Shooting Silver Bullets at Moore's Law

Windows & .NET Watch

The 40th anniversary of Moore's Law seems to have triggered some serious reflection in the eastern suburbs of Seattle. Moore's prognosis, based on four years of achievement resulting in the then-cutting-edge achievement of 50 components per circuit, boldly predicted another decade of progress.

The original paper (of course, I have a mint condition original in my closet, but no one would be interested in that), actually predicts a doubling every year, but for as long as I can remember, 18 months has been the expected (and, roughly, delivered) gestation period of doubling of circuit density. Now, Moore's "Cramming More Components Onto Integrated Circuits" has doubled its way to the neighborhood of a billion components. And the best analog we have in software development is "no silver bullets." (All texts discussed in this article are linked to at www.knowing.net/footnotes.aspx/127.)

"No Silver Bullet" is the memorable phrase from Frederick Brooks, who argues that there are essential difficulties in software, the most damning of which is that "descriptions of a software entity that abstract away its complexity often abstract away its essence."

A few years ago, Joel Spolsky recast this as "The Law of Leaky Abstractions," and pointed out that "the only way to deal with the leaks competently is to learn about how the abstractions work and what they are abstracting. So the abstractions save us time working, but they don't save us time learning."

I strive to keep this in mind while teaching: `class Foo{ public static void Main(string[] args) { System.Console.WriteLine("Hello, World"); }}` might be the most trivial C# program there is, but understanding every word and punctuation mark requires a survey of a dozen or so topics, each of which involves abstractions with plenty of leaks. (Brad Cox's thought-provoking "No Silver Bullet Revisited" argues that leaky abstractions are not, in fact, unique essences of software development, but rather are artifacts of our business models.)

The echoes of Moore's Law and Brooks' arguments inform the reading of three recent works by Redmondian deep thinkers. Microsoft architect Herb Sutter says that whatever juice is left in Moore's Law will not go toward faster linear throughput, but at best will give us improved parallelism.

NO FREE LUNCH

In "The Free Lunch Is Over," which appeared in the March 2005 issue of Dr. Dobb's Journal, Sutter says that we've already come to the end of the road, and that our next generation of development machines

Letters to the Editor

CA TOOLS TO LIVE ON

With regard to David Rubinstein's article titled "CA Relegates Developer Tools to Back Seat" [May 1, page 1], I would like to alert you to the misleading nature of at least one part of the article. The indication is that CA has placed ERwin under the Unicenter branding and in effect placed it on the back burner to languish. In a sincere and frank discussion I had with extremely reliable sources at CA in early May, it was quite obvious that the tone and meter of at least that part of the article was disingenuous. ERwin remains an important part of CA's tool set, and the very reason it has been moved under Unicenter branding is to better position the product and indicate commitment to it. ERwin 4.1.4 sp3 is about to be released, and development of the innovative ERwin version 7, the next major release, is going full steam ahead with a full complement of developers.

In fact, shortly after John Swainson took over at CA, he advised me that he was well aware of ERwin's importance to developers from his previous positions, and its importance to CA's bottom line.

Ben Ettlinger
President
New York Enterprise Modeling User Group (NYEMUG)

PRACTICES OVER PEOPLE

Referring to Allan Holub's column "The Terror of Code in the Wrong Hands" [May 1, page 37], I'm a bit saddened to read him advocating an all-too-common and unrealistic approach to improving software development productivity and quality. (The term "terrorist" was more than a bit over the top, too. I'll use the more accurate descriptor of "novice" in the body of my comments).

The actual message of the article could have been summed up in this sentence: "Let's not consider implementing any proven best practices to boost productivity and quality, but instead just waste a lot of time and money vainly trying to avoid hiring incompetent people."

In reality, there's no way to avoid hiring incompetent people, for the simple reason that people are not—and can never be—perfect. The "elite" programmers make mistakes, too. In fact, the magnitude of their mistakes may be several times larger than those of a novice, simply because of the elite programmer's position.

Instead of taking an inherently negative (and impossible) approach by always trying to hire the best of the best, two positive, simple and effective techniques can be applied.

First, put practices in place to avoid, or at least minimize the impact of, mistakes like those described in the article. Formal code reviews have shown great success.

The second technique is mentoring. Today's novice programmers are tomorrow's elite programmers. The quickest and cheapest way to bring that novice up from the depths of ignorance is to have today's elite programmers show them how to become elite.

Chris R. Timmons
C.R. Timmons Consulting

MATH IS THE FOUNDATION

I recently read Allen Holub's column "Is Software Engineering an Oxymoron?" [March 15, page 28]. This was not without

may be dual-core, but they won't be twice as fast. Sutter says that a "fundamental turn towards concurrency" is about to be taken by the software development industry in the same way that the industry took a turn toward object orientation in the early 1990s.

When Sutter, who chairs the ISO C++ Standards committee, says, "[W]e desperately need a higher-level programming model for concurrency than languages offer today," it's noteworthy. Standard C++ doesn't even have a *low-level* concurrency model!

Sutter implies that he (and, by inference, Microsoft) has something more than platitudes to offer in this regard. Cv's "chord" model would seem to be close to what Sutter describes, but that's pure speculation on my part.

One way or the other, though, such a strong statement would argue for a change, not in any one language, but within the Common Language Infrastructure itself. My personal view is that concurrency is today where memory management was a decade ago: ripe for a "good enough" solution, with leaky abstractions aplenty, that will refute the common wisdom that the subject can't be greatly simplified.

Distinguished Engineer and Turing Award recipient Jim Gray's article "A Call To Arms" (co-authored by Mark Compton), in the April 2005 Queue, is a funeral oration for the relational database architecture. That seems ironic, since the relational model is probably the most successful application of software development theory in the last half-century.

But still, according to Gray, our demands (and, yes, the economic consequences of exponential improvements in storage and memory) have brought relational architectures to their knees. Gray blames the COBOL standardization process for allowing databases and procedures to be separated at birth. (Take note, Herb Sutter! Screw up this concurrency thing and someone will be bashing your work in 2045.)

Now, says Gray, the time has finally come for object databases and the rapprochement of the database and application industries. Of course, since about 1990 people have been predicting object databases to be "The Next Big Thing," but Gray fingers the hosting of object-oriented virtual machines within the database (for example, SQL Server 2005) as the crucial enabler.

SOFTWARE FACTORIES

Jack Greenfield and Keith Short say that Software Factories (as explained in the eponymous Jolt Productivity Award-winning book) will allow us to create and reuse our own domain-specific abstractions (leaky, to be sure) more successfully than we have in the past. I've discussed Software Factories and the related subject of domain-specific languages in this column in the past. That capturing and exploiting domain knowledge can lead to great, if not exponential, productivity gains seems inarguable.

The great question is whether the tools for capturing and exploiting that domain knowledge can, themselves, be made simple and powerful enough to give us net gains.

The recent second beta of Visual Studio 2005 shows encouraging progress in the infrastructure and implementation of prepackaged high-level designers, but the crucial task of building new, domain-specific designers still requires hand editing of complex XML files. I'll be discussing that, and some third-party tools that help the process, in a future column.

I tend to be a pure software guy. I have no idea what chip set is in my development machine; offhand, I don't even remember what graphics card it has (and I built the darn thing). But Gordon Moore's foresight and the Herculean efforts of the semiconductor industry to maintain pace are amazing achievements. Moore's vision, startling at the time, was a 1975 circuit with 65,000 components. Today, I suspect my coffee-maker has more than that. Whether exponential increases in software productivity are possible, I don't know, but I do know that our colleagues in the hardware industry have given us capabilities that are absolutely untouched. ▮

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at www.knowing.net.

some difficulty, as he used a number of terms (including mathematics, programming, computer science and software engineering) at times interchangeably without precisely stating what he understands them to mean. Nevertheless, the general thrust of his essay was that mathematics is of little use for programming. To see whether or not this is true, let us examine the mathematical activity to see if it has any connection to the programming endeavor.

What do we understand by the term mathematics? At the high-school level, mathematics seems little more than an elaborate number-crunching exercise. The task involves putting numbers into formulae to obtain new numbers.

Mathematics beyond secondary education, however, goes deeper. Now the task is to understand where formulae come from and why they work. Why exactly does sin x/cos x = tan x?

The argument must be:

- General: We must show that sin x/cos x = tan x is true for all real numbers x.
- Precise: And already we have an unusual combination—generality is usually achieved through vagueness.
- Trustworthy: The argument possesses a convincing power.

Which brings us to programming. The following is an example due to Edsger Dijkstra. Suppose we are writing a banking application. Our program must satisfy three essential criteria:

- The program must be general. It will not suffice to simply be able to transfer £100 from Allen's account to Edsger's—it must be able to transfer any amount of money from any account to any other account.
- The program must be precise. The hand-waving and ambiguity we can get away with when giving instructions to other human beings cannot be used when programming computers.
- The program must be trustworthy. It would be unthinkable to introduce the banking application into service if we cannot guarantee that it will perform its functions correctly.

And now we see the skills we use to construct mathematical arguments are the very same skills we must use to construct computer programs.

Eric Macaulay

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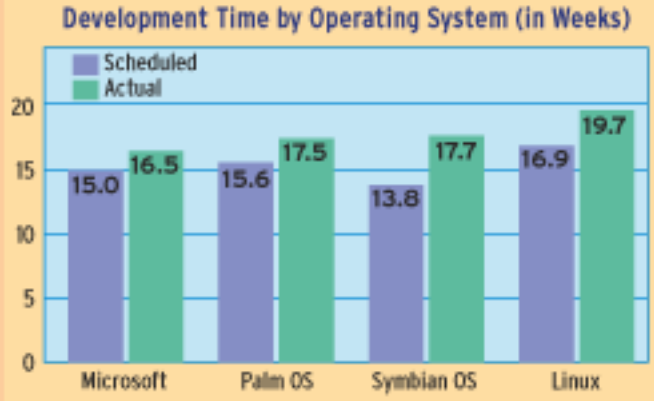
Are You Meeting Your Mobile Development Estimates?

DATA WATCH



Do your developers come within a week or two of estimated delivery dates for their mobile applications? If not, they're probably targeting Linux or Symbian OS, according to a survey published in April by Venture Development Corp.

The Natick, Mass.-based embedded research firm polled more than 1,000 developers around the world building applications for mobile devices running Linux, Palm OS, Symbian OS and Windows Mobile, and found that Palm OS- and Windows-based projects were delivered within two weeks of estimates.

Factors adding to development time for non-Microsoft operating systems, the study said, were development and/or porting of hardware device drivers; diagnostics, testing and validation of software; and customization of the operating system target image.

Markets were analyzed in the Americas, Europe, the Middle East, Africa and Asia-Pacific, and included field service and sales, transportation and distribution, warehouse management, retail, health care and public safety.

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www.vdc-corp.com

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64 Bits and Nowhere to Go

Perhaps you remember the term "virtuous cycle" that was once bandied around as if it were one of the unalterable laws of computing. The expression, borrowed from economics, refers to the process by which improvement in one domain leads to improvement in another, which leads to improvement in the first domain.

The defining example in computing was the PC hardware/software symbiosis. A new processor would come out, then a new release of a Microsoft operating system would appear with new features that would suck up all the silicon's new capacity, and this would lead to building faster chips, and so on. (For consumers, this was a vicious cycle because the same hardware and software upgrades were expensive.)

The reason you don't hear about virtuous cycles anymore is because this cycle has not functioned for several years—hardware progress has greatly outstripped software advances. No better example of this can be found than the events recently unfolding in the arena of *x*86-based, 64-bit processors.

In March 2004, Intel announced that it would match AMD's audacious leap of providing 64-bit extensions to the *x*86 architecture. And sure enough, within a few months, it was shipping Xeon processors with the new EM64T technology. These chips went head-to-head with AMD's Opteron server and Athlon 64 desktop chips.

What these chips did not have was software support. On the Linux side, Red Hat and Novell shipped the operating system bundles, but precious little followed suit. Meanwhile, Microsoft went into a prolonged cycle of beta-testing platforms and development tools that today—some 14 months later—has yet to reach completion. During this period, the product names on the betas have changed three times. Feel free to call it by the reasonably expressive name: Win *x*64. The "*x*" as in "*x*86" is important, because Win64 without the *x* is generally reserved for the version of Windows running on Itanium processors.

Integration Watch

For the past few weeks, I have been looking at and working with SUSE Linux for EM64T as well as Win *x*64. Both operating systems are good and stable. However, the question that keeps coming up is, who needs 64 bits now?

On the server, this is simple to answer: Pretty much everybody. Once the 64-bit chips become more widespread and Windows Server 2003 *x*64 emerges from beta, I expect wide adoption. Currently, database vendors, JVM vendors and other ISVs all look ready and perhaps a little exasperated by the wait for Windows *x*64 to ship. The exciting aspect for server consumers is the low price of these 64-bit chips. There appears to be little, if any, premium to pay for the new capabilities that break out beyond the 4GB ceiling on memory. That's pretty remarkable, and it shows how much we all benefit from the competition between Intel and AMD.

The 64-bit desktop, where I have been spending most my of time, however, is a different beast. Windows *x*64 runs just fine and feels just like regular Windows XP. As far as I can tell, besides the operating system, only Internet Explorer comes in a 64-bit version. And even there, Microsoft bundles a 32-bit version of IE.

Now, the bad news: Other than the browser, the lack of 64-bit software for the desktop is conspicuous. Presuming that ISVs are the immensely self-interested group we think them to be, the reason there are no apps is because there is no demand. And, let's be honest, what demand do you have for more than 4GB on your desktop?

Except for scientific software and imaging with really big files, the need for multiple gigabytes of RAM is difficult to define. Even power developers will find that less than 4GB of RAM on a workstation works just fine for the foreseeable future.

The situation holds true for both Windows and Linux—the matter has nothing to do with operating systems. The one difference is that as 64-bit does emerge into greater relevance on the desktop, the open-source community is likely to deliver products first, precisely because it uses open source. A precursor of this faster response is seen in the early (compared with Windows) release of SUSE Linux.

Microsoft's Longhorn release of Windows, which continues to slip further into the future, may reinstate the concept of a virtuous cycle by flushing all pre-64-bit processors off the company desktops. However, should it do so, it won't be on the basis of needing the 64-bit headroom, but because it will need the processing power of the then-current chips—all of which will have the *x*64 technology built in. This is the likely scenario; and so the 64-bit market will arrive under cloak of other needs, not because a killer app appeared. ▮

Andrew Binstock is the principal analyst at Pacific Data Works.

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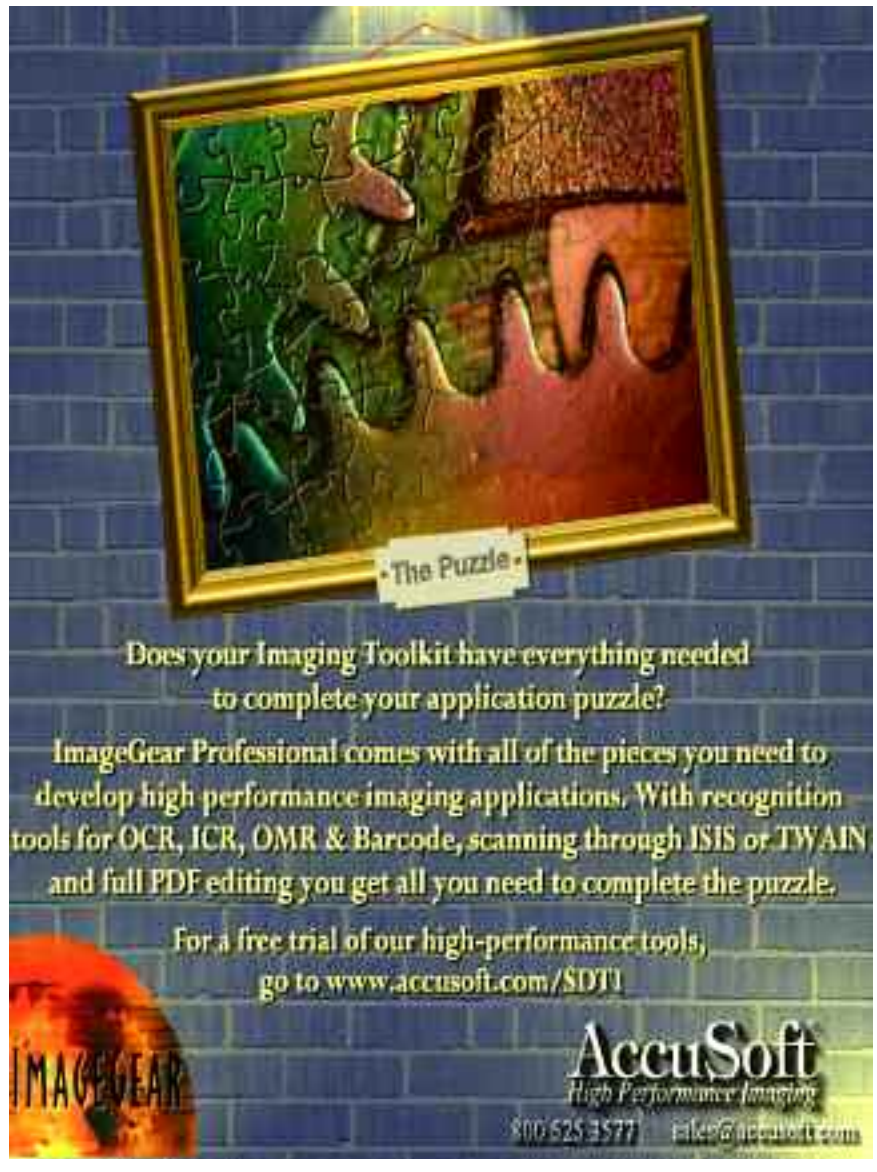
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Finding PathFinder

Every so often I come across a piece of software that stuns me with its potential. Today's example is Java PathFinder (javapathfinder.sourceforge.net), created by the Robust Software Engineering group at NASA Ames Research Center. I'd not heard of PathFinder until I read a recent press release saying that NASA had put it up on SourceForge, so I logged on to SourceForge just to find out what PathFinder was.

I'm impressed—and not just by the software itself, but by how making it open-source is exactly what's needed for a valuable resource to reach its full potential. Open-sourcing PathFinder is a brilliant move on the part of NASA.

Without NASA's original research, PathFinder simply wouldn't exist. They've taken an interesting academic idea that's been kicking around for a while—finding bugs in software by executing every possible (or at least reasonable) path through the code—and actually produced a program that finds a very-difficult-to-find bug that plagues every multithreaded program: deadlock (where two threads wait forever for each other to give up locks).

Anybody who has spent weeks trying to find a race condition that created a deadlock will immediately understand the importance of this accomplishment. The approach used to track down deadlock can also find other classes of bugs. Right now, PathFinder will find uncaught exceptions, for example, and the technology can be expanded to find other problems in your code.

PathFinder is not a testing framework like JUnit. It actually exercises the code for you, looking for bugs by running that code in a special-purpose VM. (That JVM, by the way, is written in Java. It's an interesting notion—writing a JVM in Java.)

PathFinder is a research project, however, with no commercial applicability in its current state. The documentation, for example, reads like a dissertation—it's way too dense to be useful as it stands. You have to be a developer to install the thing and get it running. The two other main shortcomings are a limited source-code size (of about 10K lines of code), which is really mandated by the technology, and an inability to process code that makes native-method calls (AWT, I/O code, etc.). The latter problem is easily solved—in fact, interfaces are provided to do a lot of the work—but these interfaces need to be implemented for all the standard libraries.

Though the sort of work represented by PathFinder is way beyond what the open-source community is typically able to do on its own, productization of research is typically way beyond what the academic community can accomplish. PathFinder would have disappeared without a trace if it had stayed closeted in the bowels of NASA.

Working in concert, though, the government/academic sector and open-source communities can do things that neither could do separately. The software is easily in a state where someone can run with it and turn it into a killer product. The basic research work is done, and NASA has effectively handed the productization of that work over to the open-source community.

The NASA folks benefit from seeing their baby grow up by handing product development over to people who actually know how to develop products, and these people can benefit by creating a killer product from basic research they don't have the resources to perform.

On the down side, the open-source community seems to have a knack for not developing promising software to its full potential. Often, nobody can be bothered to improve documentation to the point where it can be understood by someone who hasn't personally worked on the source code. Open-source projects frequently have miserable user interfaces and hideously overcomplicated configuration mechanisms. That is, it's just as likely that the official PathFinder project will grind itself into dust. The technology is there for the taking, however, either as a pure open-source product or as a larger program that incorporates NASA technology.

(The license agreement seems very generous. The actual work performed by NASA—and any modifications that you make to that work—have to remain open-source, but this requirement does not extend to a "Larger Work" that includes NASA's engine. I'll leave it up to the lawyers to decide what parts of the program constitute the "Larger Work" and what parts are natural modifications of PathFinder, but it seems to me possible to build a proprietary commercial product around PathFinder, exposing the source code for only that part of the system that derives from NASA's original code.)

So, I'm anxious to see how this all plays out. Here we have a project with great potential that solves a real problem, but it's a project that needs work to realize that potential. I look forward to seeing what the open-source community can do with it. ▮

Allen Holub is an architect, consultant and instructor in C/C++, Java and OO Design. Reach him at www.holub.com.

Presenting a FREE Web Seminar

Virtual Industry Panel: Achieving Software Build & Deployment Excellence

Date: Tuesday, June 21
Time: 2:00-3:00 p.m. Eastern
1:00 p.m. Central, 11:00 a.m. Pacific

Moderated by
David Rubinstein
Editor, SD Times

A panel discussion with industry experts who will talk about the secrets of build and deployment success. During this 60-minute live broadcast, our panel of experts from the configuration management and software development communities will address critical build and deployment issues such as:

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- Proven techniques for increasing reliability and reducing build/release errors
- Practical steps to shorten build times
- Effective support for distributed development teams
- Creating an integrated build/deploy environment using non-integrated tools.

Registrants will be invited to pose questions to panel members to get answers to their most pressing questions.

PANEL MEMBERS:

UTTAM NARSU, former Giga/Forester industry analyst, systems architect, software developer, and consultant.
MARIO MOREIRA, Director/Architect of Technology, Fidelity Investments Systems Company, author of "Software Configuration Management Implementation Roadmap."
LEE FANCEY, Director of Configuration Management, Electronic Arts.
STEVE BERCZUK, Software developer and co-author of "Software Configuration Patterns: Effective Teamwork, Practical Integration."
MICHAEL O'ROURKE, Vice President of Product Development, BuildForge Inc.

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Open Source Picks Up Speed

The momentum gained by open-source software in 2004 certainly shows no signs of letting up midway through this year. No fewer than a half-dozen news announcements regarding open-source software have hit the papers, blogs and community sites in the past two weeks.

Some of the news was very positive, while other stories pointed up some of the problems that open-source projects face. But one thing can't be denied—the software development world has taken notice of open source as more than a fad. It's here to stay—and as part of the enterprise mainstream.

Industry Watch

Certainly, there has been movement in the area of helping developers and companies use open-source code and software. Last month, a company called Koders announced the creation of a search tool that developers can use to locate and access open-source code via the Internet. The site also includes a project cost calculator to help decision-makers assess whether or not there is a financial benefit to using the open-source code.

Also last month, a start-up called Palamida released a new product that houses a large number of open-source software licenses that companies can use to see if they are infringing on someone else's intellectual property rights. And, 2-year-old IP protection software vendor Black Duck Software announced it is joining the nonprofit Open Source Software Institute.

These companies are finding that as the use of open-source software picks up speed, a cottage industry of services is springing up to profit from the fruits of many developers' labor, and that there is room to profit from free software.

Making a rich profit on services is nothing new to the big companies. IBM, whose Global Services division is the envy of most, last month acquired a 2-year-old company, Gluecode, which has built an open-source application server based on the Apache Geronimo project. Gluecode was quite small, had few customers and no appreciable worth. Yet IBM saw a way to get into the low-end Java app server market—a space JBoss has ruled with its own open-source offering—where it could profit on services and also use the app server as a steppingstone to its more lucrative, closed-source WebSphere line.

Unlike other companies that are creating their own "communities" to develop the software they are releasing as open source, IBM wants Geronimo to stay with Apache, leaving developers free to take it where they will. (IBM is committing engineers and big dollars to the project. So for Big Blue to say the "community" will control the future of Geronimo might be a bit disingenuous if IBM engineers with the greatest resources make up a significant part of the project team.)

Yet as more companies base their commercial offerings on these open-source projects, there is in fact a lure for developers to work on those projects. If, for instance, an independent developer has a great idea and builds it into the code, and the company using the project sees the value of the contribution, there's always the chance that the developer could get hired by that company.

And there is no shortage of developers working on open-source projects. Last month, SourceForge—the virtual home of open-source developers and their projects on the Web—announced it has reached 1 million users.

But with success, as noted by Jeff Duntemann in his SD Times guest column, "The Lessons of Software Monoculture" (Nov. 1, 2004, page 28), comes trouble. I'm talking about the Mozilla Firefox browser, hailed as an improvement over Microsoft's Internet Explorer because of the latter's security flaws.

Duntemann opined that Microsoft's woes were magnified because as the big dog, with installations on every Windows machine, its browser was where malicious hackers looking to cause problems could create the most havoc. Presciently, he wrote, "But then what happens if Mozilla or the Mac get too popular? … Once a product's market share creeps up toward 50% or so, the effects of the monoculture take hold again. You can run from IE, but if too many people run with you (and to the same destination) you won't be hiding for long."

Yes, Firefox was heralded in the media as an alternative to Internet Explorer. Yes, open-source advocates crowed about the number of users the browser had attracted. Yes, a series of serious security flaws have been found in that browser's software too. While open-source advocates argue that more eyes on the code mean the code is safer, perhaps just the opposite can be true as well. All this access to the code puts it into the hands of more people who have more sinister goals in mind.

It seems a controlled, "closed" open-source community, put together by companies basing commercial products on those community projects, stands the best chance of success today. Unfortunately, there are just too many malicious malcontents in this world to let something as beautiful as a community of altruistic programmers thrive without coming under attack. ▮

David Rubinstein is editor of SD Times.

BUSINESS BRIEFS

Microsoft plans to address confusion over its licensing policies by releasing next month a simpler "Product Use Rights" document, according to published reports. The current document is more than 100 pages and contains a lot of legalese. The new version will be written in plain language and will be roughly half as long as the current one, Sunny Charlebois, product manager for licensing and pricing at Microsoft, was quoting as saying, adding that Microsoft is not changing its licensing terms. Among the key changes is the grouping of products into nine categories, down from 70 individual listings. The document provides information for products bought with volume licenses only. Charlebois said the document change is part of an effort to make its licensing easier to understand. She said the company started a searchable product licensing Web site in September 2004 . . . **Novell** has acquired **Immunix**, a Linux application security solutions provider, for an undisclosed sum. Novell plans to rebrand the Immunix AppArmor software, which the company said protects the operating system, as well as applications running on it, from viruses and attacks. The addition of AppArmor expands Novell's commitment to enterprise-class security. Novell's SUSE Linux Enterprise Server 9 was the first commercial Linux distribution to support Security Enhanced Linux (SELinux) and to receive Evaluation Assurance Level 4+ certification, the company said. Immunix, founded in Portland, Ore., in 1998, was instrumental in the development of the security architecture of the Linux kernel and has close ties with the Linux development community . . . **ANTs Software**, a developer of high-performance SQL database management systems, announced that since December 2004 it has raised US$7.1 million in capital. The funds will be used for marketing, sales and product development programs related to the ANTs Data Server.

EARNINGS: TenFold, provider of the EnterpriseTenFold platform for building and implementing enterprise applications, is actively exploring financing alternatives to successfully become a software product company in the wake of a first quarter in which the net loss equaled revenue. Tenfold announced revenue of US$1.6 million and a net loss of the same amount for Q1 2005 ended March 31. TenFold's net cash outflow for the quarter was $1.6 million, and the ending cash balance was $3.6 million. "We believe all of our proof-of-concept projects were successful from a TenFold technology and customer-satisfaction perspective, and current customers have expressed satisfaction with our technology and services. However, we were disappointed by our inability to close business with promising, large prospects, in spite of our substantial efforts," said Nancy Harvey, TenFold's president and CEO. "At our present cash consumption, we will exhaust our cash resources in the third quarter of 2005." ▮

CALENDAR OF EVENTS

BREW 2005 Conference — June 1-3
San Diego
QUALCOMM
brew.qualcomm.com/brew/brew_2005

Red Hat Summit — June 1-3
New Orleans
RED HAT
www.redhat.com/promo/summit

Tech-Ed — June 5-10
Orlando, Fla.
MICROSOFT
www.microsoft.com/events/teched2005

Apple Worldwide Developers Conference — June 6-8
San Francisco
APPLE
developer.apple.com/wwdc

Gartner IT Security Summit — June 6-8
Washington, D.C.
GARTNER
www.gartner.com/2_events/conferences/sec11.jsp

JavaOne — June 26-30
San Francisco
SUN MICROSYSTEMS
java.sun.com/javaone/sf

Macworld Expo — July 11-14
Boston
IDG WORLD EXPO
www.macworldexpo.com/live/20

Black Hat USA — July 23-28
San Francisco
BLACK HAT CONSULTING
www.blackhat.com/main.html

SIGGRAPH — July 31-Aug. 4
Los Angeles
ACM SIGGRAPH
www.siggraph.org/s2005

Open Source Convention — Aug. 1-5
Portland, Ore.
O'REILLY MEDIA
conferences.oreillynet.com

LinuxWorld Conference & Expo — Aug. 8-11
San Francisco
IDG WORLD EXPO
www.linuxworldexpo.com/live/12

HP World Conference & Expo — Aug. 14-18
San Francisco
INTEREX
www.hpworld.com/conference/hpworld2005

SHARE — Aug. 21-26
Boston
IBM
www.share.org

EclipseWorld — Aug. 29-31
New York
BZ MEDIA
www.eclipseworld.net

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

Information is subject to change. Send news about upcoming events to events@bzmedia.com.

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- Test Coverage
- Memory Analysis
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- Microsoft Visual Studio .NET Integration

Issue Tracking and Project Managment

AQdevTeam

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- Configurable Fields
- Configurable Forms
- Scriptable Macros
- Email Notifications
- Web Interface
- Windows Interface

Build Automation and Release Managment

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Dear Software Professional,

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Our goal at EclipseWorld is to help you get the maximum benefit from using Eclipse. Our in-depth tutorials and technical classes go beyond the basics; from architecture to plug-ins, from the editing environment to BIRT, you'll learn what it takes to use Eclipse successfully for your projects.

EclipseWorld is the first conference specifically designed for enterprise software developers who are either using Eclipse today, or who are seriously considering the use of Eclipse tools and technologies tomorrow. We've assembled the finest faculty of expert instructors, including many who have been contributors to Eclipse's core technologies. They know the platform inside and out—and are ready to pass their knowledge on to you.

At EclipseWorld:

- There are more than 50 classes and tutorials to choose from, and there's even more learning opportunity available when you network with other software professionals during this focused conference.
- Our faculty have been hand-picked for their ability to clearly communicate the practical application of Eclipse tools and technologies for enterprise software projects.
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Look at the class listings and build a custom educational program over these three days that will give you — and your team — immediate results. Sign up today to ensure that there's room in the classes you want to take. Plus, you'll qualify for our big Early Bird discounts.

I'm looking forward to seeing you at EclipseWorld in New York.

Sincerely,
Alan Zeichick
Conference Chairman
EclipseWorld

Event Schedule

Sunday, August 28

4:00 p.m. –	7:00 p.m.	Registration

Monday, August 29

8:00 a.m. –	7:00 p.m.	Registration
9:00 a.m. –	5:00 p.m.	Full-Day Tutorials

Tuesday, August 30

7:30 a.m. –	7:00 p.m.	Registration
8:15 a.m. –	9:00 a.m.	Opening Keynote
9:15 a.m. –	10:45 a.m.	Technical Classes
10:45 a.m. –	11:00 a.m.	Coffee Break
11:00 a.m. –	12:30 p.m.	Technical Classes
12:30 p.m. –	1:30 p.m.	Lunch Break
1:30 p.m. –	3:00 p.m.	Technical Classes
3:00 p.m. –	**7:30 p.m.**	**Exhibits Open**
3:00 p.m. –	3:30 p.m.	Coffee Break
3:30 p.m. –	5:00 p.m.	Technical Classes
5:15 p.m. –	6:00 p.m.	Industry Keynote
6:00 p.m. –	**7:30 p.m.**	**Attendee Reception**

Wednesday, August 31

7:30 a.m. –	4:00 p.m.	Registration
8:15 a.m. –	9:00 a.m.	Keynote
9:15 a.m. –	10:45 a.m.	Technical Classes
10:45 a.m. –	11:00 a.m.	Coffee Break
11:00 a.m. –	12:30 p.m.	Technical Classes
12:30 p.m. –	**2:00 p.m.**	**Lunch In Exhibit Area**
12:00 p.m. –	**4:00 p.m.**	**Exhibits Open**
2:00 p.m. –	3:30 p.m.	Technical Classes
3:30 p.m. –	4:00 p.m.	Coffee Break
4:00 p.m. –	5:30 p.m.	Technical Classes

Contents

Tutorial/Class Descriptions 4
Faculty Biographies 13
Keynotes 17
Hotel and Travel Information 17
Conference Planner 18
Pricing and Registration 20

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EclipseWorld 2005 Full-Day Tutorials

Monday, August 29 • 9:00 a.m. – 5:00 p.m.

T1 Getting Started With Eclipse on Windows

By Dwight Deugo

This introductory tutorial will explore the Eclipse architecture and help experienced developers become familiar with its plug-in mechanism. We will start with an overview of Eclipse, and show how to install and run its basic features. Next, we will examine the Eclipse Workbench and its resources, views and perspectives. Then we will examine the Java Development Tools that implement a Java integrated development environment. We will finish by learning how to test and debug Java code in Eclipse using JUnit and Ant, and how to extend the platform with plug-ins.

Tutorial topics include:

- Introduction to Eclipse
- The Workbench
- Organizing, navigating and finding resources
- Using Eclipse to develop Java programs
- Running and debugging Java programs
- Writing and running JUnit tests
- Ant support
- Plug-ins

After completing this tutorial, participants will be able to install Eclipse and add new plug-ins to it, and be able to navigate and work in the Eclipse Workbench. In addition, you will learn how to create, run and debug Java programs using Eclipse.

T2 Using and Extending the Test and Performance Tools Platform (TPTP)

By Eugene Chan, Guru Nagarajan and Paul Slauenwhite

This tutorial teaches how to use and extend the profiling, logging, monitoring and analysis tooling in the Eclipse Test and Performance Tools Platform. TPTP is used to generate, collect, consolidate and analyze problem-determination data from distributed applications to accelerate problem determination, thereby increasing application serviceability and quality. This tutorial is intended for developers and architects who want to leverage TPTP's profiling, logging, monitoring and analysis tooling to incorporate serviceability in their applications. Focus is given to extending TPTP for vendor-specific purposes.

The tutorial is organized into three main sections:

- Motivation, history and architectural overview of the TPTP project.
- Profiling, analyzing and optimizing a sample Java application using various profiling filters, options and features in TPTP.
- Logging, monitoring and analysis tooling.

You will be provided with the sample plug-ins, configuration and code used in the tutorial. TPTP 4.0.0 is required to use these sample resources.

T3 The Eclipse Ecosystem: Exploring Tools and Plug-ins

By David Gallardo

Many people happily use Eclipse day in and day out as a Java integrated development, but Eclipse is actually both less than that and much more than that. At its base, Eclipse is nothing but a small kernel plus a few essential plug-ins. To be useful it must be further extended with additional plug-ins, such as the Java Development Toolkit. The plug-in architecture and the open-source nature of Eclipse provide a unique opportunity for tool vendors and individual developers to add functionality to existing Eclipse products or to develop entirely new products based on Eclipse.

This tutorial will begin with a brief introduction to the Eclipse architecture before exploring some of the most popular tools and plug-ins that are available for Eclipse, from the Eclipse organization itself, from commercial vendors and from open-source developers. In this class, you will see plug-in tools for Aspect-Oriented Programming, UML modeling and C/C++ programming, among many others.

T4 Developing J2EE Applications With the Web Tools Platform Project

By Christopher M. Judd

The Eclipse Foundation has recently released the Web Tools Platform (WTP) Project, which extends the power of Eclipse to offer greater support for Web and J2EE development. This tutorial offers participants a comprehensive introduction to using WTP to develop multitier J2EE applications.

Participants will gain a full understanding of the J2EE development tool landscape and approaches, as well as the WTP and its subprojects J2EE Standard Tools (JST) and Web Standard Tools (WST). The majority of the tutorial will teach how to use the WTP to develop, deploy and debug EJBs, servlets, JSPs and Web services. You also will learn how to use WTP to interact with relational databases and configuring application servers.

T5 Creating and Extending JFace GUIs in Eclipse

By Barry Burd

Although the Eclipse GUI components, JFace and Standard Widget Toolkit, are often used inside the Eclipse Workbench, they were designed as self-contained frameworks in their own right. Even outside the Eclipse Workbench, JFace's pluggable design lets you develop sophisticated GUIs with surprisingly little code.

As a high-level extension of the SWT, JFace takes care of the tedious programming details, and allows you to focus on the big picture. JFace integrates seamlessly with the Eclipse platform, and

things that are difficult to program with the SWT are easy to code using JFace.

In this full-day tutorial from the author of "Eclipse for Dummies," you'll see examples of JFace code in action. The instructor will guide you through a sequence of JFace programs, from the simplest to the more complex. Then, in structured exercises, you'll get practice writing JFace code, learning the subtleties, the ins and outs, the potential pitfalls and ways to avoid them.

Prerequisites: Experience using Eclipse and some experience creating GUIs in Java (with or without Eclipse). This tutorial begins with a brief review of the most essential SWT features, so previous knowledge of the SWT is not required.

Technical Classes

Tuesday, August 30 • 9:15 a.m. – 10:45 a.m.

101 Creating Your First J2EE Web Application With Eclipse in 90 Minutes

By Derek Holt and Lawrence Mandel

The recently created Web Tools Platform (WTP) Project extends Eclipse with a set of open-source Web services development tools and APIs.

In this class, through presentations and live demos, you will learn how to install and use WTP tools to create a J2EE Web application in Eclipse. You will see how WTP tools, such as the Web module, servlet and Web services wizards, and the WSDL, XML and XML schema editors and validators simplify your development experience and keep your application compliant with the many specifications on which J2EE applications are based. Some Java programming, Eclipse and Web development experience will be an asset but is not required.

102 Developing Applications With the Eclipse Rich Client Platform (RCP)

By Chris Laffra

When many people think of Eclipse, they see a Java-centric development environment. But there's more to Eclipse than Java—you now have several languages and protocols from which to choose. The Eclipse versioned plug-in architecture lets developers easily add new components, including language support for C++, PHP, Fortran, Web services and others. In this session, we will show how easy it is to write your own rich client applications based on the Eclipse Rich Client Platform (RCP). Through actual demos, we will guide you through the process of how Eclipse-based applications are built, debugged, customized, versioned and delivered.

103 Aspect-Oriented Programming With AspectJ in Eclipse, Part I

By Ramnivas Laddad

Aspect-Oriented Programming (AOP) enables modularizing implementation of cross-cutting concerns that abound in practice: logging, tracing, dynamic profiling, error handling, service-level agreement, policy enforcement, pooling, caching, concurrency control, security, transaction management, business rules and so forth. Traditional implementation of these concerns requires you to fuse their implementation with the core concern of a module. With AOP, you can implement each of the concerns in a separate module called aspect. The result of such modular implementation is simplified design, improved understandability, improved quality, reduced time-to-market, and expedited response to system requirement changes.

This two-part presentation will teach you how to develop using Aspect-Oriented Programming, and will cover the whys and hows of AOP and its concepts, and debunk myths around it. It will also introduce the AspectJ language and AJDJ plug-in, along with several examples both from client and server. The presentation will also feature live coding in Eclipse to solidify the concepts learned. No knowledge of AOP or AspectJ is required, although participants will be helped by a good understanding of OOP and Java.

104 Developing GUIs With the Eclipse Visual Editor, Swing/AWT Edition

By David Gallardo

The Eclipse Visual Editor is a valuable new tool for developing graphical user interfaces in a what-you-see-is-what-you-get (WYSIWIG) environment. VE is fundamentally a framework for developing GUI builders, but reference implementations are provided for the standard Java graphical toolkits, Swing and AWT, and for the graphical toolkit used by Eclipse.

This class will provide a brief overview of the VE architecture, followed by a demonstration of the tools provided for building GUIs with Swing/AWT. Participants will learn how to lay out the interface, add and modify components, and add the event-handling and other code necessary to create professional-looking applications.

105 Mastering the Eclipse Debugger

By Barry Burd

Catching bugs is never easy. That's why an automated debugger is an essential part of a programmer's toolbox. But debuggers are complicated. Making the most of a debugger is a skill set on its own.

This technical class covers the Eclipse debugging environment. Through examples, you will learn how to zoom in on problems and analyze runtime flows. You'll control program execution and examine "what-if" scenarios. You'll learn to manage breakpoints, inspect the values of expressions, and modify values in both registers and memory.

EclipseWorld 2005 Technical Classes

106 Consuming and Producing Web Services With WST and JST

By Christopher M. Judd

This class is an introduction to producing and consuming Web services using the Web Standard Tools (WST) and J2EE Standard Tools (JST). You'll learn how to consume popular Web services such as Google's searching Web service. You'll also learn how to expose application functionality written in Java as a Web service.

Tuesday, August 30 • 11:00 a.m. – 12:30 p.m.

201 Interacting With Relational Databases

By Christopher M. Judd

Many applications persist data to relational databases such as MySQL, Oracle, DB2 and SQL Server. During development, developers must interact with the database in order to execute DDL, run queries and modify data. In this class, you'll learn how to use the Web Standard Tools (WST) project's tools and RDB component to connect to and explore relational databases.

202 Test-Driven Development With Eclipse

By Elliotte Rusty Harold

Test-first programming is the least controversial and most widely adopted part of Extreme Programming. Within the Java community, JUnit is the de facto standard test framework. Eclipse has wisely made JUnit a core part of its Java Development Tools. This session introduces test-driven development in the Eclipse environment. You'll learn how to write, run and debug JUnit tests using Eclipse. No prior experience with JUnit is required.

203 Aspect-Oriented Programming With AspectJ in Eclipse, Part II

By Ramnivas Laddad

Continuation of Class 103. Please see description under Part I.

204 Developing Web Services With Eclipse

By Arthur Ryman

The Web Tools Platform (WTP) Project extends Eclipse with a set of open-source Web services development tools and APIs. This class gives an overview of the project and focuses on its Web services support.

WTP is divided into two subprojects: Web Standard Tools and J2EE Standard Tools. The Web Standard Tools subproject contains support for XML Web services, including tools based on standards defined by the W3C, Oasis, WS-I and others. The J2EE Standard Tools subproject contains support for standards defined by the Java Community Process, such as JAX-RPC and JSR 109, and for reference implementations of these standards, such as Apache Axis. The project contains both a set of tools for Web services developers and a set of APIs for Web services tool creators.

This class teaches you how to use the tools described above. Participants should already have a basic knowledge of Java, Eclipse and Web services; after attending this class, you will be able to use WTP to create Java applications that access Web services, and to design, create, deploy and test J2EE-based Web services.

205 Debugging and Profiling C/C++ Applications Using TPTP

By Oliver E. Cole

This class teaches you how to use the new Test and Performance Tools Platform (TPTP) extension for C/C++ applications, which provides monitoring capabilities, including execution flow, performance profiling and memory usage. The TPTP platform, as it pertains to the new C/C++ extension, will be explained and the new extension illustrated by working example. Participants will see and understand the entire application cycle, beginning with the launch of a monitored program, and concluding with analysis of the application's execution using each of the TPTP views.

206 Better Than Ever: Code Refactoring With Eclipse

By Barry Burd

Refactoring takes good code and makes it even better. Or, as the experts say, refactoring improves a program's internal structure without changing the program's external behavior. When you refactor code, you make the code more versatile, more maintainable and more manageable. Any way you look at it, refactoring is an essential part of the software development cycle.

So what's the best way to refactor code? You can refactor code the old-fashioned way, by cutting and pasting text. But tinkering with text is tedious and error-prone. Instead of cutting and pasting, use the Eclipse refactoring tools. These tools include class conversion, type generalization, renaming, method extraction and factory creation. Each tool helps you perform a complete, consistent, error-free refactoring procedure.

In this class, you will learn about Eclipse's refactoring cycle and gain in-depth knowledge of the individual refactoring tools.

EclipseWorld 2005 Technical Classes

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Tuesday, August 30 • 1:30 p.m. – 3:00 p.m.

301 Power User Central: Getting the Most Out of Your Eclipse Experience

By Chris Laffra

This session will provide participants with proven best practices, tips and tricks for getting the most out of your Eclipse development experience. You'll learn how to manage multiple workspaces, how to control various Eclipse installations, how to best run Eclipse, how to keep it alive, how to add new plug-ins, and how to write Java code faster—and much, much more. Attend this session to quickly become the smartest Eclipse user in your organization.

302 Introduction to EPIC, the Perl IDE for Eclipse

By Martin C. Brown

The EPIC project lets developers build, edit and develop Perl–based applications using the Eclipse IDE. In this class, we're going to take a closer look at the EPIC plug-in, how it can be used to develop Perl applications, and how it can be integrated into your existing development processes. You'll begin by learning the basics of the Perl environment within Eclipse—installation, configuration and the core features such as the editor, code completion and execution.

You'll quickly advance to a real-world example, developing a small module and script entirely within Eclipse. We'll use this as an opportunity to examine other areas, such as the integration with perldoc, code folding and refactoring—all of which can make the application development process run more smoothly. By the end, you will have a good understanding of how the EPIC plug-in can be used to develop your Perl applications within Eclipse. Participants should already understand the Eclipse environment and have some experience with Perl.

303 Java Annotations in Eclipse: Enhancing the JDT Experience

By Tim Wagner

Java Development Tools (JDT) provide a high-quality Java editing experience within the Eclipse platform. Sun's release of the Java 1.5 JDK provides command-line tools that enable enterprises to define annotations and use them to extend the Java language with customized behavior (metadata-driven development). Bringing these two concepts together provides a powerful extension to the Eclipse infrastructure.

In this class, you will learn how to use and extend the editing capabilities of JDT by authoring and using an annotation processor. Participants will gain an appreciation for the ease with which compile-time type information can be used to their advantage, allowing them to customize behavior by defining new checkers, generating code, and extending such JDT features as "quick fix" to cover annotation values.

Topics include:

- Defining annotation types and using the Eclipse annotation wizard.
- The mirror type system—exploring compile-time types.
- Defining apt processors.
- Extending semantic checking and adding to the "problems" report in Eclipse.
- Creating new types and files.
- Extending the user's editing experience by supporting completion and correction within annotation values and enhancing refactoring to cover annotation values.
- Interoperability between the JDK command-line tools and the Eclipse JDT, including packaging and manifest handling.

304 Using the TPTP Testing, Profiling and Monitoring Tools

By Sri Doddapaneni and Harm Sluiman

In this technical class, we will present an overview of testing, profiling and monitoring tools from the Test and Performance Tools Platform (TPTP), including JUnit testing, Web application stress testing and manual test recording capabilities. You'll learn how to create and navigate test suites, test behaviors and tests, present test results and execution history, and how to generate charts and reports of test results. Finally, we will present various adoption models for building/integrating third-party tools and extending TPTP.

305 XML Editing With Eclipse

By Elliotte Rusty Harold

More and more software development work requires handling XML. Everything from Ant build files to WSDL documents describing network services are implemented as XML. Test cases and output often can be most conveniently stored as XML. The default install of Eclipse includes a rudimentary XML editor. Third-party plug-ins add much more sophisticated editing abilities, as well as other tools such as XSL transformers, schema validators, schema editors and more. In this class, you'll master XML editing using the latest plug-ins for Eclipse. Some experience with XML is recommended.

306 Developing GUIs With the Eclipse Visual Editor, SWT Edition

By David Gallardo

The Eclipse Visual Editor is a valuable new tool for developing graphical user interfaces in a what-you-see-is-what-you-get (WYSIWIG) environment. VE is a fundamentally a framework for developing GUI builders, but reference implementations are provided for the standard Java graphical toolkits, Swing and AWT, and for the graphical toolkit used by Eclipse. This class will provide a brief overview of the VE architecture followed by a demonstration of the

EclipseWorld 2005 Technical Classes

tools provided for building GUIs with the Standard Widget Toolkit (SWT). Participants will learn how to lay out the interface, add and modify components, and add the event-handling and other code necessary to create a professional-looking application.

Tuesday, August 30 • 3:30 p.m. – 5:00 p.m.

401 Building and Deploying Eclipse RCP Applications

By Dwight Deugo

This presentation is for developers that want to build Rich Client Platform (RCP) applications. Participants will explore the Eclipse plug-in architecture and become familiar with its plug-in mechanism for developing RCP applications. You will learn how to use the required Java classes and code for your first RCP application. Then we will look at testing, packaging and deploying an RCP application. We will finish by describing how to internationalize your application and how to add help information to it.

Presentation topics include:

- Eclipse Manifest File: plugin.xml
- Required Java classes
- Testing and deploying RCP applications
- Internationalization
- Help

402 Debugging Perl Applications in Eclipse With EPIC

By Martin C. Brown

EPIC incorporates two systems that can aid the testing process for your Perl applications. The first is an interface for testing the Perl regular expression system. Regular expressions make up a major part of many Perl applications, but getting the expressions right can be complex. Using the EPIC RegExp view, you can test and modify regular expressions against known data and check the results. A more traditional tool is the EPIC Perl debugger, which is fully integrated into the Eclipse environment.

In addition to testing localized scripts, the EPIC debugger can be used to debug Web and remotely executing Perl scripts, making it ideal for a range of environments. In this class, we'll examine how both Perl systems help in the typical application development and debugging process. Participants will be expected to understand the Eclipse environment and have experience with Perl.

403 EMF-Driven Database-Enabled RCP Applications Development

By Dmitri Droujkov and Roman Porotnikov

The class provides fast, efficient methods for the development of database-enabled desktop applications built on top of the Eclipse Rich Client Platform (RCP). We present the generative approach to the development of key parts of such applications using the Eclipse Modeling Framework (EMF).

You will learn how to represent structured data using RCP and SWT/JFace abilities, and to associate data representation with actions corresponding to relational CRUD operations. The class uses an open-source wrapper library for the Hibernate object-relational mapping framework to create persistent business objects. Using RCP, EMF and Hibernate, you'll be presented with a powerful foundation for building database-aware desktop applications with a rich user interface.

404 Developing Web Services With the Web Tools Platform

By David Gallardo

The Web Tools Platform is a new Eclipse project that introduces support for J2EE services and components. This class focuses on one of the newest and most exciting additions to the J2EE 1.4 standard: Web services. If you are familiar with Web services, you know that there are a lot of pieces to juggle to get things working. This class will show you how WTP can make creating, publishing and consuming a Web service nearly painless.

405 Building Swing, SWT and RCP Graphical Interfaces in Eclipse

By Eric Clayberg

The powerful rich client capabilities that are emerging in the Eclipse technology base signal the return of Java as a viable alternative for building client-side applications. By leveraging the rich client technology, Standard Widget Toolkit and Swing, enterprise developers can create next-generation applications using leading-edge GUI building products. Participants will learn the basics of SWT, Swing and RCP development and the tools available for creating client-side Java applications.

406 Testing Tools Inside Eclipse

By Joe Toomey

The Test and Performance Tools Platform (TPTP)—formerly known as Hyades—provides a flexible layered infrastructure for integrating testing tools inside the Eclipse Workbench.

In this class, you'll learn the various approaches to integrating test editors, test control and runtime user interfaces, test definitions, test execution engines and test results in TPTP 4.0, and the benefits that accrue. The session covers the exemplary tools provided by TPTP itself for manual testing, URL testing and integration of JUnit, and shows how these provide an effective test toolkit for the Eclipse ecosystem.

EclipseWorld 2005 Technical Classes

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Wednesday, August 31 • 9:15 a.m. – 10:45 a.m.

501 Developing Enterprise JavaBeans With J2EE Standard Tools

By Christopher M. Judd

In this class, we will demonstrate developing session beans, entity beans and message beans using the Eclipse J2EE Standard Tools (JST). You will learn how to write deployment descriptors and package the application into an EJB jar or EAR file. You'll also see how to deploy the EJBs to application servers. Once the application has been deployed, the session covers how to debug the EJBs.

502 Web Application Development With Web Tools Platform, Part I

By Tim Wagner

The Web Tools Platform (WTP) Project provides a broad array of tools for authoring, publishing and debugging Web and J2EE applications. This class explores the WTP tools from a user perspective.

It covers:

- WTP installation, setup and preferences.
- Configuring and controlling servers; viewing server status and project deployment.
- Authoring, deploying and debugging basic servlets on Tomcat.
- Authoring JSP files using WTP's JSP editing capabilities; deploying and debugging JSPs.
- Schema and WSDL editing; "start from WSDL" Web services definition.
- Creating and configuring an EAR project; deployment descriptor editing.
- Authoring EJBs, and deploying EJB modules to a J2EE-enabled application server.

At the conclusion of the class, you will be able to leverage WTP in the enterprise application development cycle, and will be prepared to explore its advanced features and capabilities, having gained a solid understanding of the basic concepts.

503 Aspect-Oriented Refactoring Using AspectJ and Eclipse

By Ramnivas Laddad

Refactoring allows reorganizing code while preserving the external behavior, while AOP facilitates modularizing cross-cutting concerns in a system through use of a new unit of modularity called aspect. Aspect-oriented refactoring synergistically combines these two techniques to refactor cross-cutting elements. Individually, refactoring and AOP both share the high-level goal of creating systems that are easier to understand and maintain without requiring huge upfront design effort. A combination of the two—aspect-oriented refactoring—helps in reorganizing code corresponding to cross-cutting concerns to further improve modularization that is easy to understand, highly consistent and simple to change.

In this class, you will learn the fundamentals of aspect-oriented refactoring, including a few common patterns. The session includes live coding in Eclipse with the AJDT plug-in to illustrate the ideas learned. The class also covers Eclipse plug-ins that help with mining refactorings.

Recommended prerequisites: Knowledge of Aspect-Oriented Programming gained by either attending the "Aspect-Oriented Programming With AspectJ in Eclipse" session or by reading books and articles on AOP.

504 Developing Python Applications in Eclipse

By Martin C. Brown

Python has a long history with Java—the JPython (formerly Jython) implementation runs Python code with Java. The PyDev plug-in for Eclipse enables you to write Python applications within the IDE, including much of the functionality that we rely on when developing applications in any language. In this class, you'll examine the typical development cycle of a Python application within Eclipse, from the inception of the project through adding and importing files through the use of the editor, code completion and other functionality.

During the process, you'll learn the features that make developing Python applications using Eclipse and PyDev easier, including making use of standard Eclipse technology such as the interfaces to CVS and the project management. By the end of the class, you should have a better understanding of how you can use Eclipse for Python development. Participants should be able to program in Python and have experience using and employing Eclipse for application development.

505 Test-Driven Development and Eclipse: Delivering Working Code for Less

By Carlos Valcarcel

Test-driven development, as an essential part of any software development methodology, is supported in different ways within Eclipse. The time and effort saved by testing in-depth is substantial. We will discuss the process of test-driven development and how it compares with existing practices. Using JUnit as the starting point for Java testing, you will then learn about Cactus, StrutsTestCase, jWebUnit and Virtual Mock Objects and examine them in detail. Eclipse does not normally support many of these frameworks out of the box, so the configuration needed to use nonsupported testing frameworks will also be discussed.

EclipseWorld 2005 Technical Classes

506 Using the Eclipse Modeling Framework

By Bertrand Portier

This technical class provides a look at model-driven development and data integration using the Eclipse Modeling Framework (EMF).

You'll learn the fundamentals of EMF, a modeling and data integration framework for Eclipse, covering the project's metamodel and components. Such components include code generation, runtime, edit and validation frameworks. The class will use examples of how EMF has been used as a base to successful projects.

Wednesday, August 31 • 11:00 a.m. – 12:30 p.m.

601 Validating Application Security Using the Eclipse IDE

By Matt Hargett

Over the years, enterprise software developers, architects and IT professionals have been unable to assess security risks in applications easily because they have not had access to the applications' source code. This technical class will discuss best practices for addressing application security when source code is not available, with a specific focus on validating the security posture of applications from within the Eclipse IDE. You'll learn about white-box and black-box approaches to application security assessment, and see how vulnerabilities can be identified and eliminated in Eclipse-based technologies.

602 Web Application Development With Web Tools Platform, Part II: Advanced Topics and Extension Points

By Tim Wagner

In the continuation of the WTP overview, we extend our coverage of the Eclipse Web Tools Platform Project with several advanced topics.

These are:

- Optimizing Web app publishing for iterative development (JSR 88).
- Integrating with external build systems.
- Project layout alternatives and the WTP Flexible Project Model.
- Beyond generic server connectivity: Defining new server types.
- Advanced EJB topics
- WTP as a framework: Extending WTP to deliver your own customized application tool.
- Coming soon: A preview of WTP 1.1 themes.

Prerequisites: Participants should have attended Part I of this two-part class, or possess the equivalent knowledge of WTP basics.

603 Static Code Analysis With Eclipse

By Elliotte Rusty Harold

Static code analysis tools are a cheap, easy and fun way to find lurking bugs and design flaws in your Java programs. These tools won't find all the bugs in a codebase, and they're not very helpful with debugging a known problem, but they excel at uncovering bugs you weren't even looking for. Eclipse itself can detect and flag numerous problems, such as unused private fields, unused imports, empty catch blocks, nonlocalized strings, doc comments that don't match their associated methods and more.

In this class, you'll learn about the static code analysis options for Java in Eclipse, including what third-party plug-ins like FindBugs, PMD, JLint and checkstyle can provide that Eclipse itself doesn't.

604 Advanced Python Debugging and Testing With Eclipse

By Martin C. Brown

The PyDev plug-in for Eclipse incorporates debugger functionality enabling us to use the Eclipse environment to debug and track the in-line code testing of a project. In this class, we'll take a closer look at how to run a Python application within Eclipse and how to use the debugger. We'll also use the opportunity to look at how to perform unit-based testing—along the lines of the JUnit—using Python's own unit testing platform, unittest.

Throughout the class, we'll use Eclipse exclusively as the development and build environment, and you'll learn how the functionality of Eclipse can be used for Python development. We'll also take a closer look at the use of unittest and how it fits into the testing styles and environments supported by Eclipse through the JUnit tests used in Java development. Participants should be Python programmers with experience in Eclipse and preferably in unit-based testing methodologies (especially either unittest or JUnit).

EclipseWorld 2005 Technical Classes

605 Introduction to BIRT

By Paul Rogers

You've used Eclipse to build your Web application. Users can access and enter data. Now, your users want summary reports, detail reports, chart reports and more. Building one or two reports using JSP or XML might be workable, but it isn't going to work when your users want hundreds of reports.

The Eclipse Business Intelligence and Reporting Tools (BIRT) project provides a powerful open-source solution to this problem with robust, Java-based reporting tools. This session introduces the BIRT project, its goals and technology, and shows the types of problems that can be addressed using BIRT. Attend this session to understand what BIRT is and how it provides an alternative to tedious programming or existing commercial reporting products that are often overkill for the task in hand. Never hand-code a report again!

606 GEF Development Made Easy

By Koen Aers

The Graphical Editing Framework (GEF) contains a mountain of functionality and tools. First-time users can easily be overwhelmed by the sheer size of it. This class will follow a gentle path to the top of this hill. It will show how an application using GEF can be built, going from a simple Hello World case through different enhancements to a full functional editor for workflows and business processes.

You'll uncover the secrets of the core GEF classes, and discover the abysses that are always present in a mountain scenery. You will obtain an overview of the general architecture of a GEF application along the way. At the end of the road, you will have the right knowledge to continue exploring GEF and the different possible side paths that were left untouched. If you want to join this trip, basic Java knowledge is required. Familiarity with the Eclipse plug-in architecture is a plus but not required.

Wednesday, August 31 • 2:00 p.m. – 3:30 p.m.

701 Building With the Data Tools Project

By Der-Ping Chou and John Graham

The Data Tools Project (DTP) is an exciting new top-level project under the banner of the Eclipse Foundation. Drawing on a broad community of support, DTP aims to provide a comprehensive foundation for data-driven applications and tools built for Eclipse. The Data Tools Project includes capabilities such as configuring driver and connection definitions, browsing data sources, creating, editing and executing SQL statements, DDL generation, DDL parsing, inspecting results of operations that provide core functionality provided by DTP, and establishing a framework for data modeling tooling.

In this class, you'll receive a detailed grounding in DTP, covering the contributions made in each area of the project, current status, future directions and opportunities for future involvement. You'll learn about current components in DTP. Finally, we will detail a case study designing and implementing a new tool based on DTP.

702 Building Commercial-Quality Plug-Ins for Eclipse

By Eric Clayberg and Dan Rubel

A definitive, start-to-finish overview of building commercial-quality extensions for Eclipse. The instructors don't merely introduce the basics; they show how to add the sophistication and "polish" that end users demand. You'll learn the fundamentals of plug-in development—with specific solutions for the challenges participants will most likely encounter. Session content is based on the hit book co-authored by Clayberg and Rubel, "Eclipse: Building Commercial-Quality Plug-ins."

703 Building SWT Applications For Mac OS X

By Elliotte Rusty Harold

Your CEO's kids gave him an iPod for Christmas. Now he's bought a PowerBook, and suddenly you've been tasked with porting the company's mission-critical client software to the Mac. And by the way, if you could have this done last Tuesday, it would be really appreciated. Fortunately for you, the application is written in Java using the SWT, so the port won't be that hard. However, truly native look-and-feels require understanding the rules and conventions of the host platform: for instance, which menu items go where and what their names are. "File/Exit" is a conventional menu item on Windows, but to a Mac user it just screams that an application is a Windows port.

With the market share of the Mac predicted to double over the next couple of years as a result of the iPod Halo effect and frequent Windows security breaches, it's more important than ever for developers to make their applications Mac-savvy, even if they, themselves, are Windows or Linux users.

This class explores the challenges of developing Standard Widget Toolkit (SWT) applications that are indistinguishable from real, native Macintosh applications. It covers all the points SWT doesn't: menu item names and placement, menu accelerators, button labels, double-clickable applications, disk image files and more. It isn't hard to make an SWT application Mac-savvy, but you do need to know what's expected. Through demos of both good and bad SWT applications running on the Mac, you'll learn what Mac users expect, and how to fulfill those expectations. No prior Macintosh experience is needed.

704 Contributing Code to Eclipse: Why To. How To.

By Bjorn Freeman-Benson

Eclipse is about providing extensible frameworks and exemplary tools for the community and the ecosystem. Eclipse members base

EclipseWorld 2005 Technical Classes

commercial products on the Eclipse frameworks, and thus the Eclipse projects take special pride in their reputation for very high-quality releases. This quality is no accident—the Eclipse Development Process and the community effort to enhance and enforce that process is part of the whole Eclipse experience. You'll learn how the Eclipse software engineering processes works, and how both companies and individuals can join the Eclipse projects. We'll cover the processes, the benefits and the drawbacks, and leave you with a keen desire to join!

705 Mastering BIRT

By Paul Rogers

The Eclipse Business Intelligence and Reporting Tools (BIRT) project provides powerful open-source Java reporting tools. This session presents the concepts behind BIRT report designs and explains how a simple set of report items combine to produce a wide variety of report types. Learn how to integrate BIRT with your application using either the BIRT Web application or BIRT report engine.

Eclipse provides extensible frameworks on which others can build. Learn about the BIRT extension points for report items, data sources, report designs and more.

Wednesday, August 31 • 4:00 p.m. – 5:30 p.m.

801 Managing Distributed Enterprise Projects Using Eclipse and Maven

By Werner Keil

In complex and highly distributed projects common in today's global enterprises, a flexible and unified build tool is vital for the success of a project. Apache Maven goes beyond the common Ant tool; being more modular and using plug-ins in a standardized way, it reduces the need for build script configuration. Additional benefits come from a smart and easy-to-maintain dependency management based on central and local repositories in order to create libraries that can be reused among different projects. You'll learn how to use prepackaged and user-defined plug-ins for IDE-integration, code-style checking, unit tests, pattern use and more for enterprise projects.

802 Best Practices of Mobile Application Development

By Rodney Aiglstorfer

There are many challenges to developing mobile applications, distributing them to consumers or end users, and making everybody happy. You'll learn about the life cycle of a mobile application from developing with J2ME to unit testing to certification and deployment. We will cover everything from environment setup using the EclipseME project for building J2ME MIDlets and the ME4SE project, to interaction design and deployment. The class session will review the step-by-step construction of an XML reader and discuss current options for monetizing and deploying mobile apps.

803 Leveraging Reusable Components in JSF

By Dennis Ulyanov

JavaServer Faces (JSF) has rapidly become an essential technology for richly interactive Web applications. A major feature of JSF is how it facilitates and encourages the creation and use of highly customizable reusable components. As JSF becomes more widespread, the question of when and how to create these components has become a critical consideration for developers.

In this session, you'll learn in a practical way to take full advantage of JSF, including the key criteria for deciding when to use components. Then, you will walk through a step-by-step tutorial for developing components and incorporating them into your applications.

804 Implementing Best Development Practices in Eclipse

By Sergei Sokolov

As Eclipse rapidly becomes a mainstream development environment, chiefly for Java but also for C++ and other languages, the question of best development practices in Eclipse gains much relevance. You'll learn the best approaches to preventing errors and the illuminating application of these approaches to development in Eclipse. Coding standards checking, unit testing, coverage analysis and functional testing are examples of best practices that must be employed to ensure good code out of the chute.

In Eclipse, static checks can be easily implemented as a prerequisite to a check-in, thus preventing bugs from ever entering the shared code. Effective approaches to unit testing in Eclipse, including white- and black-box testing, also will be illustrated and explained.

Faculty

Koen Aers

Koen Aers is a senior software developer at JBoss. He is currently driving the Eclipse support for the JBoss jBPM project. He has been part of the jBPM team since April 2004 and became a JBoss employee when the jBPM project joined JBoss.

Mr. Aers graduated as a civil engineer from the Belgian Royal Military Academy and obtained a master's degree in Information Technology at the Brussels Free University. Before joining JBoss, he worked in the IT department of the Belgian Army and as a software consultant, first for Unisys and as an independent afterward.

Rodney Aiglstorfer

Rodney Aiglstorfer has been designing and developing Internet-centric consumer solutions for U.S. and Japanese companies for more than a decade. As the co-founder and CTO of mfoundry, he is the principal architect and technical visionary behind the mWorks platform.

Prior to mfoundry, Mr. Aiglstorfer was national director of technology for Semaphore Partners, one of the largest interactive agencies in the United States. As such, he provided strategic technical leadership and managed engineering departments across three geographies (San Francisco, Chicago and New York). During his tenure, he delivered solutions for Orbitz.com, LeapFrog, RestaurantPro, Screen Actors Guild, Behr and BEA.

Mr. Aiglstorfer also worked for Andersen Consulting (now Accenture) in its advanced solutions group, where he specialized in Java-based Web-centric enterprise architectures. He began his professional career in Japan, working for a number of companies in electronic gaming and e-business solutions.

Martin C. Brown

Martin C. Brown is the author of more than a dozen books, including "Perl! I Didn't Know You Could Do That…," "ActivePerl Developer's Guide," "Perl: The Complete Reference," "Debugging Perl: Troubleshooting for Programmers," "Python Programming: From the Ground Up," "Python Annotated Archives," "XML Processing With Perl, Python and PHP" and "Perl to Python Migration." Mr. Brown is also LAMP technologies editor for LinuxWorld magazine and is a regular contributor to ServerWatch.com and IBM developerWorks.

Mr. Brown draws on a rich and varied background as a founding member of a leading U.K. ISP, systems manager and IT consultant for an advertising agency and Internet solutions group, technical specialist for an intercontinental ISP network, and database designer and programmer—and as a self-confessed compulsive consumer of computing hardware and software. When not writing, he develops data-rich Web sites and Web-based applications for clients such as Hewlett-Packard and Oracle, as well as his own venture, Foodware.

Barry Burd

Barry Burd is a professor in the department of mathematics and computer science at Drew University in Madison, N.J. When he's not lecturing at Drew University, Dr. Burd leads training courses for professional programmers in business and industry. He has lectured at conferences in America, Europe, Australia and Asia. He is the author of several articles and books, including "Eclipse For Dummies" (Wiley Publishing). He has an M.S. from Rutgers University and a Ph.D. from the University of Illinois.

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Eugene Chan

Eugene Chan is a software developer on the IBM Autonomic Computing Tools and Technologies project and a committer for the Eclipse Test and Performance Tools Platform (TPTP) open-source project (formally Hyades).

Mr. Chan received a B.Math in computer science from the University of Waterloo and joined IBM Toronto Lab in 2000. He started in the Eclipse-based problem determination tools project, which became the Eclipse Hyades tools project in 2002, and has been focusing on the profiling and logging user interface of the TPTP project.

Der-Ping Chou

Der-Ping Chou is a development manager for the IBM information management group, responsible for Eclipse-centric DB2 tooling development and data tools in Rational Application Developer. He also is a committer for the Eclipse WTP Data Tools project.

Mr. Chou graduated from The State University of New York with a double major in naval architecture and computer science, and attended the master's program in computer science from CUNY. He started his software development career in early 1990, and in 1997 became lead developer in database driver and provider development at Simba. This was followed by working at Rational as a senior developer and development manager in data modeling responsible for Rose Data Modeler and XDE Data Modeler.

Eric Clayberg

Eric Clayberg is a seasoned software technologist, product developer, entrepreneur and manager with more than 15 years of commercial software development experience, including seven years of experience with Java and four years with Eclipse. He's the primary author and architect of more than a dozen commercial Java and Smalltalk add-on products, including WindowBuilder Pro, CodePro Studio and the award-winning VA Assist Enterprise product lines.

Mr. Clayberg holds a B.S. degree from MIT and an M.B.A. from Harvard, and has co-founded two successful software companies. He is co-author of the book "Eclipse: Building Commercial Quality Plug-ins," part of the Addison-Wesley Eclipse Series.

Oliver E. Cole

Oliver E. Cole is the president of OC Systems, which develops, sells and supports advanced software instrumentation tools. He has more than 25 years of extensive, hands-on experience in developing, testing and performance tuning large-scale mission-critical software for a variety of organizations, including commercial and international interests.

Before founding OC Systems, Mr. Cole worked on a number of high-reliability real-time systems for the U.S. military. Mr. Cole is a member of the Test and Performance Tools Platform (TPTP) Project Management Committee. He speaks regularly at industry conferences and has had a number of articles published in industry publications, including Dr. Dobb's Journal.

Dwight Deugo

Dwight Deugo is the CEO and director of services for Espirity, and is also an associate professor in the school of computer science at Carleton University, where he heads the laboratory on pervasive computing.

Before joining Carleton, Mr. Deugo was the director of Java servic-

Faculty

es at The Object People, where he both participated in and directed a group developing course materials and performing Enterprise Java mentoring, consulting and training. He was the past editor-in-chief of Java Report and was a columnist in Application Development Trends magazine. He has been involved with all forms of object technology for more than 18 years as a consultant, project mentor and educator.

Mr. Deugo started the Eclipse Community Education Project, where he is the lead contributor and committer. The goal of this project is to promote the creation, improvement and distribution of commercial and academic-quality Eclipse courseware, education and training technologies, and resource material. He has contributed Eclipse plug-in and Java-related courses to the project, and served as program chair for EclipseCon.

Sri Doddapaneni

Sri Doddapaneni is an engineering manager responsible for performance tools infrastructure in the software developer products division of Intel. He leads the distributed data collection and communication frameworks within the Eclipse TPTP project and is responsible for enabling adoption of TPTP by Intel software development tools.

In the past, Dr. Doddapaneni was responsible for integrated software development tool suites for the Intel Personal Client Architecture line of cellular communication processors. He earned a Ph.D. in computer science from Georgia Institute of Technology. He has written several papers on compilers, debuggers, distributed systems middleware and embedded systems, and holds a number of patents in the areas of distributed systems, software tools and computer architecture.

Dmitri Droujkov

Dmitri Droujkov is the CTO for Phenix Solutions, a software services organization that empowers innovation. He has more than 10 years of experience with programming, design, requirements and development management. In particular, he did Eclipse-based IDE development with TogetherSoft and Borland.

Mr. Droujkov's interests include integration of all aspects of the development cycle, agile development methodologies, and facilitation of distributed development using integration of Web-based collaboration tools and Eclipse-based development tools.

Bjorn Freeman-Benson

Bjorn Freeman-Benson is technical director of open-source process and infrastructure for the Eclipse Foundation. He earned his B.Sc., M.Sc. and Ph.D. in computer science from the University of Washington. He is known for his expertise and experience in practical and effective software development, and has had a lifelong interest in programming languages, development environments and engineering productivity tools.

Dr. Freeman-Benson has worked for a variety of companies, large and small, including Amazon, Gemstone, Impulse, OTI and Rational. He enjoys teaching and mentoring, and has published dozens of articles about his work. Before joining Eclipse, he was a research scientist on the UrbanSim project at the Center for Urban Simulation and Policy Analysis as well as a fellow at Bedarra Research Labs.

David Gallardo

David Gallardo is an independent software consultant and author specializing in software internationalization, Java Web applications and database development. He has been a professional software engineer for more than 15 years and has experience with many operating systems, programming languages and network protocols. His experience includes leading database and internationalization development at a business-to-business e-commerce company, TradeAccess.

Previously, Mr. Gallardo was a senior engineer at Lotus, where he contributed to the development of a cross-platform library providing Unicode and international language support for Lotus products, including Notes and 1-2-3. He is the author of "Java Oracle Database Development" (Prentice-Hall, December 2002) and lead author of "Eclipse in Action: A Guide for Java Developers" (second edition due in September).

John Graham

John Graham has been developing enterprise software for 10 years, and has been with Sybase for the past five. His academic background includes a master's degree from the University of Hawaii, concentrating on computational properties of formal and natural languages, and post-graduate training in business. He has worked on enterprise application integration technologies, Web services tooling, distributed systems, machine learning and service-oriented platforms.

A developer on Eclipse since version 1, Mr. Graham served on the Eclipse Consortium executive committee, and then later as the Sybase project lead for the Data Tools Project hosted under the banner of the Eclipse Foundation.

Matt Hargett

Matt Hargett is director of security product development at LogicLibrary. He has worked in security quality assurance for more than seven years, doing source code, runtime and binary analysis, as well as architecting processes for testing, development, requirements gathering and support at various companies.

Mr. Hargett's experience includes the software engineering of award-winning security products, the publication of several advisories on novel vulnerabilities, and the presentation of various talks at the Software Security Summit, Black Hat, Defcon and elsewhere. His professional interest in making novel vulnerability discovery more accessible and repeatable to the mass market resulted in the creation of Logiscan (formerly BugScan), which was acquired by LogicLibrary in September 2004.

Elliotte Rusty Harold

Elliotte Rusty Harold is an adjunct professor of computer science at Polytechnic University, where he teaches XML and object-oriented programming. His Cafe au Lait Web site has become one of the most popular independent Java sites on the Internet, and his spin-off site, Cafe con Leche, has become one of the most popular XML sites.

Mr. Harold is a frequent contributor to IBM developerWorks on subjects ranging from XML to Java to software testing. His books include "Effective XML," "Processing XML with Java," and "Java Network Programming." He's currently working on the XOM API for processing XML and the Jaxen XPath engine.

Derek Holt

Derek Holt is a software engineer at IBM's Research Triangle Park Lab, and focuses on J2EE tools for Rational

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Application Developer and WebSphere Application Developer. Mr. Holt also contributes to the J2EE tooling in the Eclipse Web Tools Project.

Mr. Holt has been with IBM since graduating with a B.S. in computer engineering from The Pennsylvania State University.

Christopher M. Judd

Christopher M. Judd is the president and primary consultant for Judd Solutions, an international speaker, open-source evangelist, Central Ohio Java Users Group board member and co-author of the books "Pro Eclipse JST" and "Enterprise Java Development on a Budget."

Mr. Judd spent eight years developing software in the insurance, retail, government, manufacturing, service and transportation industries. His current focus is consulting, mentoring and training with Java, J2EE, J2ME, Web services and related technologies.

Werner Keil

Werner Keil currently is a software architect working with Credit Suisse. He has worked for more than 15 years as a project manager, analyst, consultant and software architect on leading-edge technologies for investment banking, insurance and public sector organizations, including Deutsche Post, Dresdner Bank, ERSTE Bank, IKEA, Sony and the Austrian government. He develops enterprise systems using Java and J2EE, Oracle and Microsoft technologies, and does Web design and development using Adobe, Dreamweaver, Flash and ColdFusion.

In his spare time, Mr. Keil supports open-source projects and writes song lyrics, short stories and technical articles.

Ramnivas Laddad

Ramnivas Laddad is an author, speaker, consultant and trainer specializing in Aspect-Oriented Programming and J2EE, and recently published "AspectJ in Action: Practical Aspect-Oriented Programming" (Manning, 2003). He has been developing complex software systems using technologies such as Java, J2EE, AspectJ, UML, networking and XML for more than a decade.

Mr. Laddad is an active member of the AspectJ community and has been involved with Aspect-Oriented Programming from its early form. He speaks regularly at many conferences such as JavaOne, No Fluff Just Stuff, Software Development, EclipseCon, the Software Test & Performance Conference and O'Reilly OSCON.

Chris Laffra

Chris Laffra works at IBM Canada's lab in Ottawa on the border between Java runtimes and Eclipse. He obtained his Ph.D at the Erasmus University of Rotterdam in 1992. At both IBM Research and Morgan-Stanley, he worked on tools for user interfaces, component infrastructures, program analysis, debugging, visualization, compression and optimization. Previously, he led the OTI Amsterdam lab for three and a half years, working on WebSphere Studio Device Developer.

Dr. Laffra is co-author of "The Official Eclipse 3.0 FAQs," published in the Eclipse Series by Addison-Wesley.

Lawrence Mandel

Lawrence Mandel, a software developer at the IBM Toronto Laboratory, is the lead of ecosystem development and a committer for the Web Tools Platform (WTP) Project. His development focus is on XML and Web services tooling. He also works on Rational Application Developer and WebSphere Studio Application Developer and is working on the next generation of Web services tooling at the Apache Software Foundation.

Mr. Mandel joined the IBM Toronto Lab after graduating from the University of Toronto with an Hon. B.Sc. in computer science and human biology.

Guru Nagarajan

Guru Nagarajan is a member of the Intel software products division contributing to Eclipse, primarily the Test and Performance Tools Platform (TPTP) open-source project (formally Hyades). He specializes in software patterns, frameworks and component-based software development. He is the author of numerous papers on Java and XML technologies.

Prior to this software development life, Mr. Nagarajan focused on object-oriented technologies and object databases. He received an M.S. in computers from the University of Michigan.

Roman Porotnikov

Roman Porotnikov is a senior software developer at Phenix Solutions. He has more than seven years of Java software development experience and more than four years experience with generative programming. Mr. Porotnikov has participated in the development of model-based RAD tools, including Visual Fabrique (at JetBrains) and CodeCharge (at YesSoftware), as well as diverse J2EE-based enterprise applications.

Currently Mr. Porotnikov takes part in the development of a client/server application based on the Rich Client Platform (RCP) project. His interests are grouped around using the generative programming approach with Eclipse technologies for improving the software development process.

Bertrand Portier

Bertrand Portier is an IBM core developer for the Eclipse Modeling Framework (EMF). He has extensive experience with service-oriented architecture (SOA) and Model Driven Architecture (MDA), and he participated in the development of the IBM Java Development Kit (JDK) and other products and offerings in the Web services arena. He also helped IBM WebSphere customers with the integration of their distributed applications.

Mr. Portier also has published articles, taught technical classes and spoken at customer conferences.

Paul Rogers

Paul Rogers led the design of the BIRT reporting model, and is currently director of open-source evangelism at Actuate, where he leads the effort to support and develop the open-source community around BIRT technology. He is also a member of the BIRT PMC.

Mr. Rogers is an Actuate co-founder, having joined in 1993 to develop the reporting model in Actuate's e.Report Designer product. He is a co-inventor of two patents in business intelligence technology and has contributed to many Actuate products over the years.

Dan Rubel

Dan Rubel is an expert in the design and application of object-oriented technologies with more than 15 years of commercial software development experience, including eight years of experience with Java and four years with Eclipse. He's the primary architect and product

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manager for several commercial products, including JFactor, jKit/GO and jKit/Grid, and has played key design and leadership roles in other products, such as WindowBuilder Pro, VA Assist and CodePro Studio.

Mr. Rubel has a B.S. from Bucknell and has co-founded a successful company. He is co-author of the book "Eclipse: Building Commercial Quality Plug-ins," part of the Addison- Wesley Eclipse Series.

Arthur Ryman

Arthur Ryman is a senior technical staff member at the IBM Toronto Laboratory, where he is currently a leader of the Web Tools Platform (WTP) Project. His previous products include Rational Application Developer, WebSphere Studio Application Developer and VisualAge for Java. His areas of interest include Web services, XML and J2EE.

Dr. Ryman is currently an editor of the W3C Web Services Description Language 2.0 specification. He is a member of the IBM Academy of Technology, a senior member of the IEEE, and an adjunct professor at York University in Toronto.

Paul Slauenwhite

Paul Slauenwhite is a software developer on the IBM Autonomic Computing Tools and Technologies project and a committer to the Test and Performance Tools Platform (TPTP) open-source project (formerly Hyades).

After receiving a B.Sc. in computer science from Dalhousie University, Mr. Slauenwhite joined IBM in 2000 and worked on the WebSphere Object Level Trace (OLT) project. In 2001, he joined the IBM WebSphere Studio Team and developed logging and tracing technologies. He moved to the Eclipse Hyades project at its inception in 2002, focusing on log and trace data, collection and correlation. Mr. Slauenwhite is currently working on an M.Math in software engineering at the University of Waterloo.

Harm Sluiman

Harm Sluiman is a senior development manager for Autonomic Computing Tools as well as Rational Test and Performance Tools at the IBM Toronto Lab. He was responsible for database, test, trace and performance tooling in WebSphere Studio. He is an IBM senior technical staff member, a co-chair of the Canadian Excellence Technical Community, and an affiliate of the IBM Academy of Technology.

Mr. Sluiman has written several articles on test and performance tooling, has contributed to several OMG RFPs related to data access, and has been a frequent speaker at conferences.

Prior to working on WebSphere Studio, Mr. Sluiman was the lead for distributed processing and database tooling for VisualAge for C++. He was a contributor to JSR 47 and JSR 165, and holds many patents in the areas of data modeling, test tools and performance analysis. Mr. Sluiman is a member of the TPTP Project Management Committee, chairperson of the TPTP Architecture Group and a member of the Eclipse Architecture Council.

Sergei Sokolov

Sergei Sokolov, manager of professional services at Parasoft, has more than 10 years of experience in software development and engineering management. In his previous roles, he was responsible for technical and engineering management of development and QA teams, and setting up and supporting the implementation of best software development practices.

Mr. Sokolov has an extensive background in the areas of object-oriented software design and testing, and quality management specific to software engineering. He has spoken at professional conferences on best practices for preventing security errors in software, and co-authored a paper on this subject.

Joe Toomey

Joe Toomey is a senior software engineer at the IBM Rational lab in Lexington, Mass. He has been a committer for the Test and Performance Tools Platform (TPTP) Project since its inception in 2002 (as the Hyades subproject of the Tools PMC), leading the Test Model subgroup, and acting as committer for the Test Model team and the Execution Environment Control group. Mr. Toomey also participates in several IBM Architecture groups.

Mr. Toomey received a B.S. in math and computer science from Carnegie Mellon University in 1993, and joined Rational Software in 1997. Prior to his work on TPTP, he was a developer on several Rational products, including Rational Robot, Rational Quality Architect and Rational XDE Component Test.

Carlos Valcarcel

Carlos Valcarcel, director of technology at Trivera Technologies, is a highly regarded subject-matter expert in the field of enterprise Java and object-oriented technologies. With almost 20 years of development experience, Mr. Valcarcel has spent the bulk of his career architecting and programming critical object-oriented business systems, utilizing his extensive skills in Java, J2EE and other leading-edge technologies. His book "Eclipse Kick Start," was published in September 2004 by Sams Publishing.

Dennis Ulyanov

Dennis Ulyanov is the chief software architect at Exadel, and is responsible for determining how the company's products should be designed to maximize benefits for Exadel's customers. Mr. Ulyanov brings more than 12 years of experience in service-oriented architectures, object-oriented analysis and design, system architecture design, and real-time multithreaded and distributed systems development, as well as Internet-based software development, management and consulting.

Mr. Ulyanov has been instrumental in Exadel's deliveries to Hitachi, Inprise, ABN AMRO Bank and General Electric. He holds a doctoral degree in computer science from the Russian Academy of Sciences.

Tim Wagner

Tim Wagner manages the open-source IDE and language tools at BEA, and chairs the Eclipse Web Tools Platform management council. As the author of the recently proposed Language Development Toolkit technology project, he has been a focal point for language research and development within the Eclipse community.

Dr. Wagner's work with the BEA WebLogic Workshop product line includes multilanguage compiler development, schema binding technologies, and a broad array of incremental algorithms and data structures targeting language-aware IDEs. His current research interests include metadata-driven development and extensible language frameworks for high-fidelity user interaction.

Keynotes

Opening Keynote

Tuesday, August 30 • 8:15 a.m. – 9:00 a.m.

Eclipse: The Road Ahead

Mike Milinkovich

Mike Milinkovich is the executive director of the Eclipse Foundation. In the past, he has held key management positions with Oracle, WebGain, The Object People and Object Technology International Inc. (which subsequently became a wholly owned subsidiary of IBM), assuming responsibility for development, product management, marketing, strategic planning, finance and business development.

Mike Milinkovich

Industry Keynote

Tuesday, August 30 • 5:15 p.m. – 6:00 p.m.

Dale Fuller

Dale Fuller is president and CEO of Borland Software Corp. Fuller joined Borland in April 1999 with more than 20 years of experience in general management, marketing and business development in the technology industry.

Before being named president and chief executive officer, Fuller was president and CEO of WhoWhere? Inc., one of the leading community sites on the Internet. He was also a vice president and general manager at Apple.

Dale Fuller

Keynote

Wednesday, August 31 • 8:15 a.m. – 9:00 a.m.

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Convenient to Grand Central Station, JFK and Newark Liberty International and LaGuardia airports and many other New York City attractions and businesses, The Roosevelt Hotel's ideal New York City location is a dream come true. Nestled among the Empire State Building, 5th Avenue shopping and the world-famous shows on Broadway, guests are only steps away from the action found within the heart of the city that never sleeps.

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EclipseWorld has a room rate guarantee of $189 per night at The Roosevelt Hotel. To receive the rate, you can either:

- Call the hotel directly and identify yourself as being with EclipseWorld.
- Register online at http://www.therooseveltthotel.com/Reservations/?ratecode=eclipse.

Reservations must be made by **August 7th** in order to receive the special rate.

Conference Planner

Sunday, Aug. 28

Registration Open
4:00 p.m. – 7:00 p.m.

Monday, Aug. 29

Registration Open
8:00 a.m. – 7:00 p.m.

Full-Day Tutorials
9:00 a.m. – 5:00 p.m.

- **T-1** Getting Started With Eclipse on Windows – Deugo
- **T-2** Using and Extending the Test and Performance Tools Platform (TPTP) – Chan, Nagarajan, Slauenwhite
- **T-3** The Eclipse Ecosystem: Exploring Tools and Plug-ins – Gallardo
- **T-4** Developing J2EE Applications With the Web Tools Platform Project – Judd
- **T-5** Creating and Extending JFace GUIs in Eclipse – Burd

Tuesday, Aug. 30

Registration Open 7:30 a.m. – 7:00 p.m.

Exhibits Open 3:00 p.m. – 7:30 p.m. / Attendee Reception on Show Floor

Opening Keynote – Milinkovich 8:15 a.m. – 9:00 a.m. / Industry Keynote – Fuller

9:15 a.m. – 10:45 a.m.

- **101** Creating Your First J2EE Web Application With Eclipse in 90 Minutes – Holt, Mandel
- **102** Developing Applications With the Eclipse Rich Client Platform (RCP) – Laffra
- **103** Aspect-Oriented Programming With AspectJ in Eclipse, Part I – Laddad
- **104** Developing GUIs With the Eclipse Visual Editor, Swing/AWT Edition – Gallardo
- **105** Mastering the Eclipse Debugger – Burd
- **106** Consuming and Producing Web Services With WST and JST – Judd

11:00 a.m. – 12:30 p.m.

- **201** Interacting With Relational Databases – Judd
- **202** Test-Driven Development With Eclipse – Harold
- **203** Aspect-Oriented Programming With AspectJ in Eclipse, Part II – Laddad
- **204** Developing Web Services With Eclipse – Ryman
- **205** Debugging and Profiling C/C++ Applications Using TPTP – Cole
- **206** Better Than Ever: Code Refactoring With Eclipse – Burd

1:30 p.m. – 3:00 p.m.

- **301** Power User Central: Getting the Most Out of Your Eclipse Experience – Laffra
- **302** Introduction to EPIC, the Perl IDE for Eclipse – Brown
- **303** Java Annotations in Eclipse: Enhancing the JDT Experience – Wagner
- **304** Using the TPTP Testing, Profiling and Monitoring Tools – Doddapaneni, Sluiman
- **305** XML Editing With Eclipse – Harold
- **306** Developing GUIs With the Eclipse Visual Editor, SWT Edition – Gallardo

Conference Planner

eclipse WORLD
The Enterprise Development Conference

Wednesday, Aug. 31

Registration Open 7:30 a.m. – 4:00 p.m.

Exhibits Open 12:00 p.m. – 4:00 p.m. / Lunch In Exhibit Area 12:30 p.m. – 2:00 p.m.

Keynote 8:15 a.m. – 9:00 a.m.

3:30 p.m. – 5:00 p.m.	9:15 a.m. – 10:45 a.m.	11:00 a.m. – 12:30 p.m.	2:00 p.m. – 3:30 p.m.	4:00 p.m. – 5:30 p.m.
401 Building and Deploying Eclipse RCP Applications – Deugo	501 Developing Enterprise JavaBeans With J2EE Standard Tools – Judd	601 Validating Application Security Using the Eclipse IDE – Hargett	701 Building With the Data Tools Project – Chou, Graham	801 Managing Distributed Enterprise Projects Using Eclipse and Maven – Keil
402 Debugging Perl Applications in Eclipse With EPIC – Brown	502 Web Application Development With Web Tools Platform, Part I – Wagner	602 Web Application Development With Web Tools Platform, Part II: Advanced Topics and Extension Points – Wagner	702 Building Commercial-Quality Plug-Ins for Eclipse – Clayberg, Rubel	802 Best Practices of Mobile Application Development – Aiglstorfer
403 EMF-Driven Database-Enabled RCP Applications Development – Droujkov, Porotnikov	503 Aspect-Oriented Refactoring Using AspectJ and Eclipse – Laddad	603 Static Code Analysis With Eclipse – Harold	703 Building SWT Applications for Mac OS X – Harold	803 Leveraging Reusable Components in JSF – Ulyanov
404 Developing Web Services With the Web Tools Platform – Gallardo	504 Developing Python Applications in Eclipse – Brown	604 Advanced Python Debugging and Testing With Eclipse – Brown	704 Contributing Code to Eclipse: Why To. How To. – Freeman-Benson	804 Implementing Best Development Practices in Eclipse – Sokolov
405 Building Swing, SWT and RCP Graphical Interfaces in Eclipse – Clayberg	505 Test-Driven Development and Eclipse: Delivering Working Code for Less – Valcarcel	605 Introduction to BIRT – Rogers	705 Mastering BIRT – Rogers	
406 Testing Tools Inside Eclipse – Toomey	506 Using the Eclipse Modeling Framework – Portier	606 GEF Development Made Easy – Aers		

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- Admission to exhibits
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Registration Questions

Contact Donna Esposito at +1-415-785-3419.

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